NEW BUSINESS COMBINATIONS ACCOUNTING RULES AND THE MERGERS AND ACQUISITIONS ACTIVITY

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Thesis Summary

The perennial controversy in business combinations accounting and its dialectic with stakeholders' interests under the complexity of the Mergers and Acquisitions (M&A) activity is the centrepiece of analysis in this thesis. It is argued here that the accounting regulation should be as neutral as possible for the economic activity, although it is recognised that accounting changes may result in economic effects. In the case of the changes for business combinations accounting in the USA, lobbying was so fierce that in order to achieve the abolition of accounting choice in M&A accounting, it forced the standard-setter to compromise and to change substantially some of its earlier proposals. Such fierce lobbying cast doubts about whether it was effectively possible to mitigate such economic effects, resulting in a possible impact of the accounting changes on the M&A activity.

The occurrence of M&A in waves is yet to be fully theorised. Nevertheless, existing literature established relationships between M&A activity and some key economic and financial factors, and has provided several interesting theories and other meaningful contributions for this thesis. It was therefore possible to examine whether the changes in the accounting rules produced any significant impact on the M&A activity.

The findings obtained from the testing of the research hypotheses suggest that the new M&A accounting rules did not result in significant impacts on overall M&A activity. Nevertheless, from the study of managers' perceptions, and from the examination of annual reports of S&P 500 companies, a considerable impact on the financial reporting was found.

Key words:

Mergers and Acquisitions (M&A), M&A activity and waves, Accounting regulation, Economic consequences, Business combinations, Accounting choice, Pooling of interests method, Purchase method, Goodwill amortisation, Goodwill impairment

Dedication

This thesis is dedicated to my family in Portugal and in Brazil, in thanks for their continuing support and encouragement during its preparation. Iria, Franklin, Stella, Nita, and godmother Lúcia, I love you all.

In memory of José Maria Pereira

who could not live long enough to witness the accomplishement of this thesis.
Many thanks for everything,
may you enjoy eternal life.

Post scriptum:

I had the confirmation of my PhD on my Godfather's first anniversary

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Contents

Tables

Page

Figures

Page

Chapter 1 Introduction

1.1 Summary

This thesis is concerned with the possible economic consequences that may arise from changes in accounting regulation. More precisely, it investigates whether the changes occurred in business combinations accounting in 2001 affected the Mergers & Acquisitions (M&A) activity in the USA.[1]

Accounting can be perceived from different perspectives as it serves different users and purposes. For example, Hendriksen & van Breda (1992) refer to the following approaches for accounting: tax, legal, ethical, economic, behavioural, and structural. Different approaches and different influences which can be ultimately tracked from four thousand years of previous accounting forms, being the major milestone the development of bookkeeping during the Italian renaissance, which the Franciscan friar Luca Pacioli would formulate and publish in Venice in 1494.[2]

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[1] Vid. the note on M&A and business combinations definitions and terminology in chapter 3.

[2] Luca Pacioli is also known as Luca Paciolo, Lucca Paccioli, Luca Paciuolo, Luca di Borgo, among other names. He compiled the existing knowledge about double-entry bookkeeping in the *Tractatus Particularis de Computis et Scripturis*, which formed part of the *Summa de Arithmética, Geometria, Proportioni e Proportionalita*, a broader scientific work which included several topics, mostly related with mathematics.

For the purposes of the present research, accounting is important from a financial point of view, as it is concerned with financial reporting. One could therefore argue that more important to discuss in depth some specific theoretical aspects of accounting would be to focus exclusively on the process and the consequences of the accounting regulatory process, particularly for all the parties with interests related to corporate reporting. However, although it may resemble a paradox, together with the study of the developments in the accounting regulation, such desiderate also implies a reference to the recent evolution in the accounting theory, as both matters are intrinsically linked.[3]

On the other hand, M&A activity, which like accounting is also interdisciplinary, is closely related with finance and economics, and constitutes a complex social sciences topic. Therefore, a brief epistemological review on social sciences follows, along with an historical review in accounting and exchange markets, which will help to understand contemporary accounting and finance theories, and their interlinked relationships. This examination provides a starting point for the present research, as it deals with the idiosyncrasies of M&A accounting, such as its politics and lobbying. The political and lobbying influences effects on accounting regulation is a topic only briefly introduced in this chapter, as it is to be examined in depth in chapter 2, together with its effects on business combinations accounting. It also launches the basis for the discussion as to why it was not possible until now to construct a comprehensive conceptual theory for accounting.

1.2 The development of accounting theory and regulation

From Pacioli's time, double-entry bookkeeping remained barely unchanged as the basic technique in accounting (Hendriksen & van Breda, 1992; Kam, 1990). However, the world suffered major revolutions since then, first with the

[3] For the development of this topic we rely primarily on Hendriksen & van Breda (1992), with no disregard to other major works on accounting theory, such as the ones of Kam (1990), or Belkaoui (1985).

maritime discoveries, and later with the industrial surge.[4] Such discoveries would result in an immense flow of maritime trade, and also in an increasing demand for funds to start new commercial routes and to launch other discoveries' enterprises. This motivated individuals to associate in ventures, which would lead to the creation of joint stock companies. Monetarism developed alongside maritime trade and the emerging trading companies. Later, the emergence of exchange markets made it possible to trade the stock of joint companies.[5] However, the exchange markets were still incipient and somewhat naïve, as the shortfall of information and the relatively small amounts of capital involved made it easily vulnerable to manipulation. Therefore, massive bubbles and colossal bursts occurred, resulting in some remarkable losses even for many notable individuals.[6]

It was only in the 19th century that accounting started to be subject to some regulation (Hendriksen & van Breda, 1992). The first step was made in the UK, with the publication of the Joint Stock Companies Act in 1844, which called for auditors to ensure completeness and fairness of the balance sheets disclosed by companies. It also required companies to maintain accounts. By improving the quality of the information disclosed, as the auditors could also hire accountants and other experts, a better functioning from the exchange markets was expected, since investors could be better informed about the companies.[7]

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[4] Six years before Paccioli's *tractatus*, Bartolomeu Dias crossed the Cape of Good Hope discovering the maritime way from Europe to Asia, and enabling the maritime route to India, which Vasco da Gama would sail ten years later. Only four years after Good Hope's breakthrough, Colombus would discover America.

[5] The first stock exchange was founded in Amsterdam, Netherlands, in 1602. In the UK, the London Stock Exchange was created in 1773, and in the USA, the Philadelphia exchange was the first to be created, in 1746, followed by the New York Stock Exchange (NYSE), in 1792.

[6] When the South Sea Company bubble burst in the 18th century, even the British Royal family lost a fortune of a considerable amount. For that reason, stock certificates and joint stock companies were banned from the UK, for a period of over a century, until the cessation of the so-called Bubble Act in 1825 (Hendriksen & van Breda, 1992: 46; 63).

[7] For a review of accounting in the UK, in the form of an "archaeology of financial reporting", vid. Crowther (2002b).

In the USA, the corporate and financial development from the post-World War I period resulted in an increased pressure from the financial sector and from the stock exchanges, which led to a shift in the objectives of the existing basic accounting structure. The securities markets crash in 1929 would reinforce such pressure, which, alongside with important issues regarding financial reporting, led to a decrease of importance and participation in the accounting establishment from the accounting profession itself. From a previous accounting concerned primarily with the interests of creditors and management, it was now demanded a shift to a new group of stakeholders: investors and shareholders. According to Hendriksen & van Breda (1992: 98):

> "The change in the objective of financial statements led to:
> 1. A de-emphasis of the balance sheet as a statement of values.
> 2. A consequent increased emphasis on the income statement and a uniform concept of income.
> 3. A need for full disclosure of relevant financial information, by presenting more complete financial statements and increasing the use of footnotes.
> 4. An emphasis on consistency in reporting, particularly with respect to the income statement.".[8]

Consequently, corporate development and economic events led to a quest for accounting principles that could be coherently integrated in a conceptual framework. This would become a matter of utter importance, but from the start, the intrinsic complexity of accounting seemed to make this purpose unlikely to concretize.

In the scope of the accounting richness and diversity, it would never be easy to settle a comprehensive and unanimous theoretical framework (vid. Hendriksen & van Breda, 1992). As argued by many authors, an unanimous framework is an impossibility as consensus can never be reached (see e.g. Seidler, 1984;

[8] In an interesting analogy, Ripley (1927) linked the balance sheet to a still photograph of the situation of a company at a certain point in time. This analogy would be later refuted by May (1934), arguing that is not possible to take a picture of history. Additionally, he criticised the accuracy of the accounting records that were produced by then.

Gerboth, 1987). Even if consensus were possible, it would be undesirable, as it would never be possible to consider comprehensively the whole complexity inherent to accounting and to its heterogeneous and dynamic environment, which is typical for a discipline that belongs to the group of the social sciences, in a single framework.[9]

The way in which the accounting is constructed does not help either (vid. e.g. Hendriksen & van Breda, 1992). One could argue that accounting can be primarily developed in two ways: bottom-up and top-down. Bottom-up as the accounting practice was in early times the source of the generally accepted accounting principles (GAAP).[10] However, new challenges for the accounting profession were raised by the economic and entrepreneurial development of the early 20th century, a natural outcome following the Industrial Revolution and the advent of capitalism.[11] Additionally, the impressive events of the Great Depression, which resulted in an extraordinary number of corporate bankruptcies, many of which including accounting frauds, shed light on the discrepancies of the existing accounting practice. In the absence of detailed codes of procedure and well-established and coherent accounting principles, this led to a condition where the financial reporting was substantially relying on the professional judgement. Moreover, adding a subtle rationale, one could even suggest that the existing condition of accounting and financial reporting at that time could be easily manipulated according to the interests of owners and managers, possibly misleading external entities, such as investors and creditors. In conclusion, in face of anecdotal evidence of a deficit of uniformity in financial reporting, linked to biased accounting practices, it was hazardous for the users

[9] For examinations regarding the complex nature of accounting vid. e.g. Mattessich (1995), or Hendriksen & van Breda (1992).

[10] Due to the complexity of accounting theory, which has always resulted in a shortfall of consensus on accounting principles, the GAAP definition resulted to be somewhat vague, and therefore difficult to define. Roughly, one can understand GAAP as accounting practices accepted by the accounting community and with substantial acceptance from the accounting regulators. A formal definition of this concept is shown later in this chapter.

[11] Vid. Hendriksen & van Breda (1992) for a review of the development of accounting thought. This and the following three paragraphs rely mostly on Hendriksen & van Breda's work.

to rely on the accounting information. The accounting profession was therefore under pressure, and a major shift was required.

Modern financial accounting in the USA is marked by the 1929 Stock Exchange Crash and the subsequent Great Depression. The turmoil in the economy and in the financial markets led the US Congress to approve the Securities Act of 1933, and the Securities Exchange Act of 1934, which brought to life the Securities and Exchange Commission (SEC). The SEC was created to supervise and to regulate the securities and exchange markets. Additionally, it has also been given regulatory authority to the SEC in order to set accounting rules. However, the SEC would delegate this responsibility to private accounting committees and boards. From 1936 to 1973, the accounting policy was delegated to the American Institute of Certified Public Accountants (AICPA), and to its predecessor, the American Institute of Accountants (AIA).[12] However, as AICPA's decisions and hesitations started to face increased criticism, it would be replaced in such role in 1973 by the Financial Accounting Standards Board (FASB).[13] After FASB induction, the accounting construction process become

[12] The first professional body of accountants formed in the UK was the Society of Accountants in Edinburgh, Scotland, in 1853 (Kam, 1990). A few years later the designation of "chartered accountant" would be adopted by three Scottish societies (Kam, 1990: 28). Other associations would follow across the UK and, in 1880, five of the existing organisations would be incorporated in the newly founded Institute of Chartered Accountants in England and Wales, in an attempt to remove "an increasing number of unqualified people doing accounting-auditing work" (Kam, 1990: 28). The first accounting professional organisation to be formed in North America was in Montreal, Canada, in 1880, followed by the Institute of Accountants and Bookkeepers in the USA in 1882 (Kam, 1990).

[13] More precisely, the accounting regulatory policy was in charge of the AICPA from 1887 to 1934; the SEC from 1934 to 1936, the Committee on Accounting Procedure (CAP) from 1936 to 1959, and the Accounting Principles Board (APB) from 1959 to 1973. The AICPA was created as the American Association of Public Accountants (AAPA) in 1887, and it was reorganized later in 1917 as The American Institute of Accountants (AIA), before adopting its current designation in 1957, when "Certified Public" was added to its name (Hendriksen & van Breda, 1992). Both CAP and APB were created and controlled by the AICPA. While AICPA is a private institution more accounting professionals-orientated, the FASB is also a private organization, but independent from the AICPA, and primarily user-orientated.

essentially top-down: from standard setting to the accounting profession. Nevertheless, it was possible to maintain accounting experts directly involved in the regulation, and the accounting professionals continued to be invited to participate in the standard-setting process.

Regardless the status of the accounting profession and regulation, the development of accounting theory remained an issue, facing more drawbacks than advances. One of the first academics in the USA interested in the development of a broad set of accounting principles was Professor William Paton, founder and president of the American Accounting Association (AAA), who published his doctoral thesis entitled "Accounting theory" in 1922.[14] Afterwards, when he was the research director of the AAA, he published a first essay of a statement in The Accounting Review (Paton, 1936). This would be the first of a series of monographs focused on accounting principles, which would also have the later contribution of Professor Ananias Littleton (Paton & Littleton, 1940). However, such efforts have never resulted in any definitive accounting statement or standard, but only in tentative statements, as it was not possible to reach a consensus amongst the academic and professional accounting community.

The post-World War II boom also seemed to have boosted the quest for accounting principles, and not only by the AAA, but also from the accounting policy setter, which was by then in charge of the AIA's (AICPA) CAP.[15] Later, when the AICPA's Accounting Principles Board (APB) was formed, a permanent study group on the accounting principles task was formed. As Professor Maurice Moonitz, Director of Accounting Research of the AICPA, was

[14] Among the most prominent early contributors for the accounting theory, it is possible to find names such as Cole (1908), Sprague (1908), and Hatfield (1909). Zeff (2000: 108) refers to them as the authors of the "three most important book-length works on accounting theory and practice during the first decade of the century in the United States". Other later relevant contributions included similar approaches, such as the one of Montgomery (1912), and broader ones, such as the economic one of Canning (1929).

[15] This boost was also felt in business combinations accounting as to be discussed later in chapter 2.

commissioned to research on the accounting principles and postulates, it would then produce the Accounting Research Study (ARS) No. 1, *The Basic Postulates of Accounting*, published in 1961. Another reference work, the ARS 3, *A Tentative Set of Broad Accounting Principles for Business Enterprises*, authored by Moonitz and Robert Sprouse, a future FASB member, was published one year later, in 1962.[16] These two studies were focused on the basic accounting postulates, and on the accounting principles, respectively. ARS 1 considered postulates as basic assumptions concerning the accounting environment for which the accounting would need to adjust in order to operate. This position was substantially different from the one expressed previously by the AIA's Committee on Terminology, in the Accounting Terminology Bulletin (ATB) No. 1, *Review and Resume*, published in 1953. Among the different generic definitions of principles that could be found in an English dictionary, the committee found that "A general law or rule adopted or professed as a guide to action; a settled ground or basis of conduct or practice" was the one shared by most of the accountants, particularly by the "practicing public accountants".[17] As for postulates, the committee claimed that (paragraph 17, ATB 1):

> "Initially, accounting postulates are derived from experience and reason; after postulates so derived have proved useful, they become accepted as principles of accounting. When this acceptance is sufficiently widespread, they become a part of the "generally accepted accounting principles" which constitute for accountants the canons of their art. It is not convenient, either in conversation or in writing on accounting subjects, to add "(meaning number three)" each time the word principle is used, though that essentially is understood.".[18]

It was argued that if principles of accounting were just rules, it should be possible then to deduce them from the more basic assumptions called *postulates*.[19]

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[16] Robert Sprouse would become a member of the newly created FASB in 1973.

[17] Paragraphs 16-17, ATB 1.

[18] Also of interest, the authors views on accounting as an "art".

[19] Chambers (1963) op. cit. Hendriksen & van Breda (1992: 101).

Not surprisingly, the reactions from the accounting community to both ARS 1 and ARS 3 were not favourable, and they failed to be accepted. Critics from individual members of the APB were placed in the end of both ARS's documents. For example, Leonard Spacek rejected the idea of several postulates, arguing in favour of the existence of a single one (Moonitz, 1961: 57).[20] The APB published its position in the Accounting Principles Board Statement (APS) No. 1, *Statement by the Accounting Principles Board*, in 1962b, stating that (paragraph 2, APS 1):

> "Prior to its publication, Study No. 3 has been read and commented upon by a limited number of people in the field of accounting. Their reactions range from endorsement of the ideas set forth in the study of "Broad Principles" to misgivings that compliance with the recommendations set forth by the authors would lead to misleading financial statements. The Board is therefore treating these two studies (the one on "Postulates" and the other on "Principles") as conscientious attempts by the accounting research staff to resolve major accounting issues which, however, contain inferences and recommendations in part of a speculative and tentative nature.".

Accordingly, the APB claimed that (paragraph 3, APS 1):

> "while these studies are a valuable contribution to accounting thinking, they are too radically different from present generally accepted accounting principles for acceptance at this time.".

Afterwards, Deinzer (1965) also criticized the lack of a link between postulates and principles. Additionally, in a later ARS 7, Grady (1965), employing a pragmatic-inductive method instead of the deductive method of ARS 1 and ARS 3, challenged the idea of a single and uniform accounting model, recalling the complexity and diversity in accounting.[21]

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[20] Leonard Spacek was member of the APB and managing partner of Arthur Andersen.

[21] Vid. the epistemological piece shown later in this chapter.

Following widespread criticism from virtually all quadrants, ARS 1 and ARS 3 were rejected, including by the AICPA's APB. Although welcomed by the accounting community, ARS 7 would not have a much better fate, as none of these series of studies would become a statement of accounting principles. It became evident that the quest for broad accounting principles returned once again to ground zero. Nonetheless, the criticism provoked by these studies brought some new interesting ideas to the foreground.

In 1963, Vatter argued that instead of principles or postulates, the focus should be primarily on objectives. This was an early indication of a major shift, which would materialise in a reference document published by the AAA in 1966: *A Statement of Basic Accounting Theory*, which would became best known by its acronym, ASOBAT. Additionally, in ASOBAT it was argued that accounting should allow its users to make informed judgements in order to make decisions. This user-orientated view, to the detriment of the accounting professionals' views, was a major milestone and it would continue to inspire later statements produced on accounting theory. Obviously, new concepts meant new challenges and new issues to address, such as: how to link users' needs and accounting principles; or how to deal with accounting users, a complex and heterogeneous group, both in nature and also in terms of needs.

Despite all efforts made by AICPA on accounting theory development, it failed to produce any statement in the 1960's, and therefore pressure was piling on the APB. In response, the APB would finally publish the APS 4, *Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprises* (American Institute of Certified Public Accountants; Accounting Principles Board, 1970a). The APB statement kept the focus on the objectives and on the user approach that has been used previously in the ASOBAT, as clearly stated in paragraph 9, and in paragraph 10, respectively:

> "Accounting is a service activity. Its function is to provide quantitative information, primarily financial in nature, about economic entities that is intended to be useful in making economic decisions.",

> "Financial statements are the means by which the information accumulated and processed in financial accounting is periodically communicated to those who use it. They are designed to serve the needs of a variety of users, particularly owners and creditors.".

The APB statement also focused on the accounting environment and the way it was linked to the users' needs (paragraph 18, APS 4):

> "Needs and expectations of users of financial statements are a part of the environment that determines the type of information required of financial accounting.",

as it also devoted a chapter to the links between the objectives of financial accounting and its users needs, in the scope of the accounting principles:

> "The basic purpose of financial accounting and financial statements is to provide financial information about individual business enterprises that is useful in making economic decisions (...). General and qualitative objectives aid in fulfilling this basic purpose and provide means for evaluating present and proposed accounting principles.".

By "qualitative objectives", the APB meant that information needed to be relevant, understandable, verifiable, neutral, timely, comparable, and complete.[22]

Also of special interest, are the APB's noteworthy views on GAAP (paragraphs 138 and 139, APS 4):

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[22] Previously, in AAA's ASOBAT, some of these "qualitative objectives" were identified as standards - or criteria - of financial information, that would need to conform to a set of guidelines. More precisely, as standards, the AAA identified: relevance, verifiability, freedom from bias, and quantifiability. According to Hendriksen & van Breda (1992), the definition of standards was an attempt to avoid the problem of the myriad of different needs from a heterogeneous group of users, by producing financial information that was broad in its characteristics.

> "Generally accepted accounting principles therefore is a technical term in financial accounting. Generally accepted accounting principles encompass the conventions, rules, and procedures necessary to define accepted accounting practice at a particular time. The standard[23] of "generally accepted accounting principles" includes not only broad guidelines of general application, but also detailed practices and procedures."[24]

> "Generally accepted accounting principles are conventional - that is, they become generally accepted by agreement (often tacit agreement) rather than by formal deviation from a set of postulates or basic concepts. The principles have developed on the basis of experience, reason, custom, usage, and, to a significant extent, practical necessity.".

Although the tacit nature of GAAP is recognized, the way and the objective foundations for its establishment are not explained. Despite the importance of APS 4, a prolific document regarding accounting theory substance, the GAAP definition is a good example of the overall APS normative approach. In fact, as the APB recognizes in the statement' body text itself, the APS 4 is "primarily descriptive and not prescriptive" (paragraph 3, APS 4). Additionally, it also recognises the shortfall of discussion, and admits that new developments are missing, as the statement simply "identifies and organizes ideas that for the most part are already accepted." (paragraph 3, APS 4). Finally, the AICPA's APB was not concerned at all with enforcing the statement. On the contrary, it removed any responsibilities by unequivocally disclaiming that (paragraph 4, APS 4):

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[23] "The independent auditor's report gives the auditor's opinion as to whether the financial statements *present fairly the financial position . . . and the results of . . . operations, in conformity with generally accepted accounting principles. . . .*" (American Institute of Certified Public Accountants; Accounting Principles Board, 1970a).

[24] "The term *principles of accounting* as used in reporting standards is construed to include not only accounting principles and practices but also the methods of applying them." (Statements on Auditing Procedure No. 33, Auditing Standards and Procedures, p. 40, op. cit. American Institute of Certified Public Accountants; Accounting Principles Board, 1970a).

> "*The Board has not evaluated or approved present generally accepted accounting principles except to the extent that principles have been adopted in Board Opinions. Publication of the Statement does not constitute approval by the Board of accounting principles that are not covered in its Opinions.*".[25]

Unsurprisingly, although APS 4's importance was recognized by the accounting community, criticism could not be precluded, even if such criticism has been much more limited than the one rose before by the ARS 1 and the ARS 3.[26] As Hendriksen & van Breda (1992: 109) note, APS 4 "is not a theory of accounting practice nor a clear statement of GAAP". Moreover, AICPA's APB cannot be much criticized for attempting to be successful where others previously failed, where any attempts are likely to fail: undoubtedly, accounting theory is complex and diverse, and therefore its discussion is unlikely to result in any broad consensus. Moreover, pragmatism was increasingly overshadowing theorisation, and business lobbying and political influences were increasingly overruling the accounting profession intents of leading the development of accounting practice under a sound and broad theoretical framework that could effectively protect accountants' conduct from such forces (Hendriksen & van Breda, 1992).

The AICPA's APB lifetime was far from easy, as it had to face permanent criticism up to the point where many believed that the SEC would replace the APB in the role of the accounting policy setter (see e.g. Anthony, 1963). The quest for accounting principles required an adequate organisation, and both the AAA and the AICPA made proposals concerning how accounting principles and financial accounting objectives should be set. As to be discussed in chapter 2, it

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[25] Original italic.

[26] For critiques and additional comments on the APS 4, see e.g., Ijiri (1971), Schattke (1972), or Staubus (1972). One of the members of the APB, George R. Catlett, dissented to APS 4. According to Catlett, the statement failed to provide "a basis for guiding the future development of financial accounting", as the APB "is looking backward to what has occurred rather than forward to what is needed" (APS 4, 1970). Among other considerations, Catlett summarised his fundaments for dissenting by claiming that APS 4 "creates a significant roadblock which will seriously impede the efforts of the business community and the accounting profession to establish sound principles for financial accounting and reporting." (APS 4, 1970).

is interesting to refer that one of the most controversial topics on APB's agenda was the business combinations accounting. The discussion of this very sensitive issue would result in further pressure over an increasingly fragile board.

In 1971, under the AICPA auspices, a committee to study the establishment of accounting principles was created. The committee was under the leadership of Francis Wheat, and it would be called accordingly as the Wheat Study Group. Its report of the study on establishment of accounting principles, *Establishing Financial Accounting Standards*, was published in 1972. The Wheat Committee Report documented and analysed the difficulty of the search for accounting principles and, following the developments in the scope of the AICPA's APB restructuring that was taking place by then, made two foremost recommendations: first, to replace the designation "principles" by "standards", as "accounting principles" was considered slightly pretentious; secondly, to name the new standard setting organisation "accounting *standards* board" and not "accounting *principles* board" (Hendriksen & van Breda, 1992: 109).

The Wheat Committee recommendations led to the foundation of the Financial Accounting Foundation (FAF), which was made responsible for the FASB and for the Financial Accounting Standards Advisory Council (FASAC). This new accounting organisational structure was created in 1973 and, from 1 July, the FASB replaced the APB in the standard-setting role.[27] Three main characteristics of the new board are worth highlighting: i) independence from the AICPA although, together with other organisations, AICPA continued to participate in the new board; ii) standard-setting authority given by amendment of Rule 203, providing enforcement power to FASB's standards across the several states in the USA, as recognized by the state Boards of Public

[27] While the FASB and the FASAC are professional bodies, the FAF is a foundation composed by trustees from a broad range of interested organisations, namely: the AAA, the AICPA, the National Association of Accountants, the Financial Analysts Federation, the Financial Executives Institute, the Securities Industry Association, and several governmental accounting groups.

Accountancy.[28] The SEC has also endorsed the standard-setting authority of the FASB in 1973, ensuring substantial authority support to FASB's standards; and iii) a new comprehensive accounting standards approval due process: topics are subject to a preliminary evaluation, followed by a possible admission to the agenda.[29] Early deliberations are made public in discussion memorandums, before tentative resolutions are published in the form of exposure drafts, which are then subject to public discussion. Following hearings, further deliberations are possible, before a final resolution may be published as a standard.

Following the Wheat Study Group recommendations, the newly-appointed board started to look for accounting objectives, but using different designations from its predecessors. A new shift on the quest for accounting principles occurred. From onwards, instead of accounting principles, the focus would be on

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[28] According to the *Rules of Conduct of the Code of Professional Ethics of the American Institute of Certified Public Accountants*, the Rule 203 (vid. American Institute of Certified Public Accountants, 1977):

> "prohibits a member from expressing his opinion that financial statements are presented in conformity with generally accepted accounting principles if the statements depart in a material respect from such principles unless he can demonstrate that due to unusual circumstances application of the principles would result in misleading statements - in which case his report must describe the departure, its approximate effects, if practicable, and the reasons why compliance with the established principles would result in misleading statements.".

Following the Rule 203 amendment, the preponderance of FASB's GAAP was made clear (SFAC 1, 1978):

> "Rule 203 prohibits a member of the American Institute of Certified Public Accountants from expressing an opinion that financial statements conform with generally accepted accounting principles if those statements contain a material departure from an accounting principle promulgated by the Financial Accounting Standards Board, unless the member can demonstrate that because of unusual circumstances the financial statements otherwise would have been misleading.".

[29] Securities and Exchange Commission (1973).

accounting standards, having the "new" accounting principles a different meaning from the "old" ones.

From Paton to Moonitz, and from the AAA to the AICPA, the quest for a comprehensive and coherent set of accounting theory seemed to have reached an end. Principles (e.g. Hatfield et al., 1938; Paton, 1936), postulates (e.g. Moonitz, 1961; Paton, 1922), standards (American Institute of Certified Public Accountants; (Wheat Study Group), 1972; Paton & Littleton, 1940): looking back, the different developments in accounting theory seem now more a question of semantic than substance. Nevertheless, the previous work on principles and postulates would be useful for the creation of an accounting conceptual framework, as FASB's availing proved, being such enterprise to be examined in the next chapter.

1.3 Ontology, theoretical identification and theory validation

Accounting theories can be identified and verified in different ways (American Accounting Association, 1971; Hendriksen & van Breda, 1992). Accounting theory can be classified as: i) language, ii) reasoning, or iii) script. As language, it can be studied: as: (i) pragmatics, the effect of language; (ii) as semantics, the meaning of the language; and (iii) as syntactic, the logic of the language. As reasoning, it can be classified as: (i) deductive, where arguments come from generalisations to specifics; or vice versa, as (ii) inductive. Finally, as script, the theory can be: (i) descriptive, also called positive, as it studies the interactions of financial information with its users; versus (ii) prescriptive, also called normative, as it discusses the ways the financial information should be prepared and reported.

As for the main approaches to accounting theory, there are three which relate more closely to the issues described in this chapter: i) the behavioural approach, which focuses on the relevance of the information that is used for decision--making, and on the behaviour of the different users of the financial information

which is being reported; ii) the structural approach, which focuses on the structure of the accounting system itself. It is a classical approach to deal with basic issues in accounting, such as the ones related with professional judgement, or the relations between the accounting profession and the management (e.g. the study of the reasons underlying the management choices on accounting); and iii) the economic approach, which studies the correspondence between accounting data and economic interpretations. Among the several economic approaches, the microeconomic approach is of particular interest, as it focuses on the impact of alternative reporting procedures on economic activities, and on measurements at the firm level. "Institutional" modern accounting theory approach is based on microeconomics, as this is the approach adopted by FASB.[30]

Usually, inductive theories are positive, while deductive theories are not necessarily normative. The inductive reasoning is frequently based on experiments, and therefore it is often called empirical. The accounting theory is considered empirical, when, for instance, financial data is collected in order to infer, i.e. to induce, conclusions to a greater whole, the entire population, or the universe, at best. Nevertheless, it is important to avoid linear associations, as almost all theories include both inductive and deductive reasoning. Additionally, both inductive and deductive reasoning may be positive or normative.

As for theory as language in relation to accounting theories approaches, the structural approach is primarily syntactic, while the economic and behavioural approaches are primarily pragmatic.

In terms of theory verification, i.e. to verify whether a theory is logically sound and has a broad acceptance, prescriptive theories are verified by judging the reasonableness of their assumptions, while descriptive theories can be verified in two different ways: i) descriptive theories that do not include empirical content, like syntactic ones, are simply validated by logic; and ii) for descriptive theories

[30] Classifications and definitions based on Hendriksen & van Breda (1992), as much of the explanations concerning this topic.

that have empirical content, like the pragmatic theory which focuses on the usefulness of accounting information to the users, its validation relies as much on its truth as on its usefulness.

The revolution in the accounting standard-setting process was also followed by a major shift in accounting research: from an inductive-deductive reasoning base, to a more pragmatic framework dominated by empirical studies.[31] Pragmatism and usefulness become the standard for a substantial part of the accounting research, although with some disregard to other research strands that subsisted and continue to be developed.

It is a fact that dialectics enable social sciences to flourish, in the scope of the dynamic of the contradictions illustrated in the Hegelian logic – thesis, antithesis, and synthesis.[32] According to Crowther (2002b: 8), the dialectics of corporate reporting is "concerned with the relationship between the organisation and its environment", being mediated through financial reporting itself. However, the author argues that this corporate reporting dialectic is more apparent than real.

As descriptive theories gained ground, the number of tests enabling predictions has also increased. As long as the results of such predictions can be verified, a theory can be then validated. Such validation is achieved following a satisfying number of successful tests, i.e., theory can be validated through a certain number of repetitions. In case the theory fails to predict, or flaws are found, the theory is not confirmed, being ultimately refuted (Popper, 1963).

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[31] The "demand" for such change was materialised by Watts & Zimmerman (1978, 1979), whose theory would be later subject to further developments and consolidation (1986, 1990). According to Watts & Zimmerman (1990: 148), early examples of positive accounting research include Gordon (1964), Gordon et al. (1966), and Gagnon (1967).

[32] Even though Kant (1781) was the first to develop the concept of dialectics, Hegel (1822) is considered the founder of modern dialectics.

One of the authors that focused on the description of the scientific process was Kuhn (1962). He suggested that science derives from paradigms, which are not necessarily to be accepted or refused by the scientific community, but are rather to be adopted according to its usefulness to generate pertinent questions about our world. If a paradigm is no longer useful to raise questions, it will then be abandoned.

Theory validation is everything but a consensual topic. While theory can be validated in different ways, some do not believe this to be essential, and others even argue that theory validation is not possible in social sciences. Naturally, the complex nature of accounting makes it more difficult to use predictions in order to validate theories.[33]

As this research is focused on the possible economic consequences of a particular change in accounting regulation by the standard-setting authority, an economic approach, primarily pragmatic, based on the study of the impact of the limitation of alternative reporting procedures on economic activities, namely on M&A activity, was adopted. This thesis is also based on descriptive theory, commonly referred to as positive, as it studies the interactions of financial reporting with the economic decisions of its users, rather than to be concerned in formulating ways in which accounting changes should be made, in the scope of the normative theory.

Both deductive and inductive theory are used, albeit the main reasoning is inductive, empirical, as several sets of financial data were collected in order to infer conclusions to a greater whole. As methodology involved the use of statistical testing, it was also possible to proceed with theory validation, with no disregard to the limitations referred before (Hendriksen & van Breda, 1992).

It is believed that the ontological and theoretical positions adopted in this thesis may allow the use of an adequate research methodology in accordance to the

[33] Vid. Hendriksen & van Breda (1992: 20), for several levels of theory confirmation in accounting.

proposed examination of the main research question. It is also arguable that such approach may provide enough and suitable means to test the research hypotheses, in order to obtain results that may be adequately subject to validation. Finally, such adoption was also driven by the ontological-theoretical and methodological mainstream used in literature related to this thesis, as to be discussed thoroughly in this thesis.

1.4 Accounting, finance, and globalisation

Much of the historical and epistemological review presented in this chapter not only is suitable for supporting the accounting framework, but also for economics and finance. Financial accounting is placed at the micro-level of economy, and it is interrelated with finance. The approximation of financial accounting to finance is also a result of the exchange markets development and the changes in the accounting regulation. Additionally, not only accounting, finance, and economics share the same environment, as they also have the same scientific nature and basis.

Every discipline has its own particularities and therefore social sciences share as much similarities as differences. As discussed, the instrumental nature of accounting makes it special. For example, unlike economy, it does not make so much sense to simplify assumptions in order to formulate models from the reality, as accounting needs to find solutions for concrete solicitations from the real world. Concurrently, finance faced numerous developments in recent years, which have resulted in a flowing of new theories, deriving from innovative hypotheses that lead to the construction of new models. As examples of classical financial literature: the efficient-market hypothesis (Fama, 1970); the capital asset pricing model (CAPM) (Sharpe, 1964, 1970), in the scope of the portfolio theory (Markowitz, 1952); or the agency theory (Jensen & Meckling, 1976).[34]

[34] For a history of corporate finance see e.g. Baskin & Miranti Jr. (1997).

In recent years, the paths of financial reporting and finance became increasingly linked. The research in financial accounting had to adapt to the developments in the securities markets and to the subsequent advances in the research in finance. Indeed, as the financial markets witnessed significant developments, the research in finance has flourished, propelled by a developing industry that was successful in attracting new researchers (vid. e.g. Mattessich, 1995). To a certain extent, such success was also made at the expense of the research in accounting. Indeed, as Mattessich (1995) notes, unlike finance, financial accounting is not particularly useful to the free market forces, but serves mostly institutions exercising regulatory functions. However, accounting research, unlike many other professional disciplines, such as finance, despite serving policymaking, does not lead practice, such service being construed as a disincentive for accounting practitioners to demand accounting research (Mattessich, 1995; Reiter & Williams, 2002). Unsurprisingly, the accounting research has been suffering from a long period of "crisis", as proved by the weak demand for academic accountants by accounting firms, industrial firms, or by regulators; in contrast with a strong demand for academicians in other professional disciplines, such as finance (Demski et al., 1991; Reiter & Williams, 2002). Nevertheless, more recently, it became more common to FASB to try justifying their accounting policy options based on academic research on financial accounting and finance, as in the case of the intangible assets under business combinations accounting (Maines et al., 2003).

Concurrently to the evolutions and convulsions in the accounting field, a new strand of research, influenced by the advances in economics and finance empirical research, has emerged since the 1970's (e.g. Watts & Zimmerman, 1978, 1986). This strand of research is focused primarily on the study of how economic decisions are made, rather than on proposing ways in which such decisions should be made, which was by the time of this insurgence the conventional approach in accounting (vid. e.g. Hendriksen & van Breda, 1992). Other strands of research in accounting have emerged since then, some of which as a response to this new strand, which is commonly labelled as positivist (inter alia Hendriksen & van Breda, 1992; Ryan et al., 2002). Nevertheless, the

positivist approach managed to establish as mainstream in financial accounting research, particularly in the USA.[35] Consequently, since the 1980's the accounting research published in the top journals was mostly based on USA data and has also employed a positivist approach (vid. e.g. Lukka & Kasanen, 1996). Nevertheless, it seems geography also plays a role: while researchers in the USA favour a more quantitative, positivist, approach; European researchers were found to favour a more qualitative (e.g. case studies) approach (Lukka & Kasanen, 1996), being some mainstream UK based journals a good example of prevalence of critical and interpretative approaches (Lowe & Locke, 2005). Considered by many as "revolutionary" (vid. e.g. Beaver, 1989; Mouck, 1993), the introduction of positivism in accounting generated widespread discussion among the accounting research community, that continues until the present, although which much less importance, as other strands in accounting continued to emerge and develop, such as constructivism (vid. e.g. Quattrone, 2000).

As every approach, positivism stands on is own merits. Undoubtedly, its inception induced major changes in the accounting research. However, as every approach, positivism has also its own drawbacks, as pointed out by many authors.[36] Moreover, the emergence of positivism was not enough to stall the overall ongoing decline of the financial accounting research (Reiter & Williams, 2002). Neither so critical accounting, or any other alternative approaches in accounting, as such decline is a consequence of a complex set of reasons as examined by many authors, such as Mattessich (1995). Nevertheless, regardless criticism, positivism and economic-based research established as a mainstream approach not only in finance and in the USA, but also in financial accounting and in many other locations worldwide.

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[35] Bricker & Previts (1990) refer to an American Accounting Association Committee report quoting that the published research using a "rigorous" method increased from 12% in 1963 to 86% in 1975, and to 98% in 1986. Undoubtedly, the "pace of the empirical research revolution was rapid" in the USA (Reiter & Williams, 2002: 582).

[36] Criticism to positive accounting research comes from different grounds: from theoretical (vid. e.g. P. Armstrong, 1991; H. G. Hunt & Hogler, 1990; Tinker et al., 1982; Tinker & Puxty, 1995) and philosophical-logical (e.g. Hines, 1988; Lowe et al., 1983; Mouck, 1992; Whittington, 1987), to methodological (e.g. Abdel-Khalik et al., 1989; Holthausen & Leftwich, 1983).

Finally, the need for accounting harmonisation appeared on the scene following the increasing of the economic globalisation pace. Concurrently to the FASB's foundation, the International Accounting Standards Committee (IASC) was created in 1973 with the main goal to develop accounting standards that could be adopted not only at domestic level, but also internationally. Since then, the International Accounting Standards Board (IASB), its successor, has recorded some relevant accomplishments, namely the endorsement of international accounting standards by the European Union (EU) countries in 2005, and the acceptance of its standards by over one hundred countries worldwide.[37] The FASB and the IASB have also been working together in several convergence projects, including the joint development of a conceptual framework. The SEC has also outlined a roadmap for the implementation in the USA of IASB's pronouncements, the *International Financial Reporting Standards* (IFRS).[38] As a consequence of the latter developments referred above, nowadays much of the discussions regarding accounting issues are made at a Pan-National level.

1.5 Conclusions

The last decades have witnessed major developments in the accounting practice and in the financial activity, understandably leading to a significant evolution in the accounting and finance research. As examined in this chapter, in the USA, the quest for accounting principles, that could integrate a comprehensive theoretical set, generated broad discussions among the accounting community that prevail hitherto. Concurrently, finance and financial markets experimented a significant growth and the research in finance has flourished, propelled by a developing industry that was successful in attracting new researchers. This has also affected the research in financial accounting, and a new strand of research,

[37] IABS's official website at www.iasb.org provides an updated list of countries that have adopted IASB standards, and also additional information about IASB's history and activities.
[38] IASB's GAAP are essentially formed by recently issued IFRS, and by earlier standards, named International Accounting Standards (IAS), issued by its predecessor, the IASC.

influenced by economics and finance, has emerged. This strand of research, focused primarily on the study of how economic decisions are made, granted a significant adherence among researchers in financial accounting, regardless the emergence of other strands of research since then, often in opposition to such positive views. Despite disputable, as is everything in research, one could argue that the sizeable amount of research following a positivist approach published in the journals considered to be of the highest reputation in accounting and finance, leaves little doubts about the prevalence of this approach in the research developed in more recent decades, being this phenomena particularly evident in the USA.

It can therefore be regarded as reasonable that this thesis stands on a positivist ontology and methodology. This is not simply because a positivist approach seemed to be more appropriate for the development and testing of the research hypotheses, but also due to the fact that this research is focused on the examination of the possible economic consequences from changes in accounting regulation in the M&A activity in the USA, being the USA the most active market in terms of M&A industry, and also being the country with the most prolific technical (articles, reports, government documents, etc) and academic production with this regard. This reinforces the mentioned approach standpoint: much of the literature used to support the development of this thesis shares a positivist view, therefore expanding research possibilities and enabling diverse research synergies, such as cross-sharing of theories, methodologies, and findings.

However, such a standpoint cannot, by any means, be regarded as being disrespectful to other approaches largely considered to be equally valuable and valid from a scientific standpoint. Indeed, the main research question of this thesis, recalled in the previous paragraph, is predisposed to interdisciplinarity, ranging from the economic and social fields up to motivational and the underlying psychological related factors. Understandably, a comprehensive coverage of the extension of such interdisciplinarity, which would involve the assessment of a wide variety of topics, related to economic, finance, behavioural

finance, financial reporting, taxation, strategy, and motivational issues, among others, would not be reasonable, as the examination of the research questions imply some level of specification. Therefore, following a preliminary analysis of the issues more closely related to the main research question, in the scope of the research proposal, it has been considered to be reasonable that a focus should be given to socio-economic factors, with a particular emphasis to the M&A phenomenon and related economic and finance theories, and also to related financial reporting issues. Accordingly, other approaches were found to be of interest, namely involving the use of critical perspectives in accounting, related to issues regarding regulation and business and political influences; the use of survey method; and financial reporting analysis, related to M&A disclosures.

In order to fulfil the research proposals, the structure of this thesis has been outlined as follows. Following the discussion started in this chapter about the lost quest for principles in accounting and the role of regulation in financial reporting, chapter 2 examines the effect of lobbying and political influences on standard-setting policy, with particular regard to business combinations accounting.

The discussion of the main topics related with the new business combinations accounting and M&A activity, including its underlying theories, is shown in chapter 3. Of particular interest is also the discussion of the economic consequences that arise from the standard setting process, in the scope of FASB's conceptual framework and FASB's business combinations standards. This discussion is critical as it is directly related with the examination of the main research question.

One can argue that in recent years the accounting theoretical *idiosyncrasies* have been overcome by the financial theory developments. Nevertheless, despite some remarkable financial theory achievements, finance still fails to provide many explanations. Some of such theoretical shortfalls were identified by Brealey et al. (2006), and were described as notable "ten unsolved problems in finance". One of the unsolved problems in finance is exactly to explain why the

M&A occurs in waves. The insufficiencies of both accounting and finance theories posed a major challenge to the present research. However, the theoretical insufficiencies were compensated by a considerable amount of literature concerning M&A, which allowed the development of hypothesis according to the main research question, as presented in chapter 4.

Chapter 5 exhibits evidence about the managers' perception about the relevance of the changes in M&A accounting, collected by means of a survey questionnaire. It also provides an examination of disclosures related to business combinations accounting from annual reports of constituent companies of Standards & Poor's (S&P) 500 index.

The remainder of this thesis is outlined as follows. In chapter 6 is provided information about the data collected for the development of the main research models. Chapter 7 presents the development of the research models, which, although founded in several existing hypothesis and partial theories, presents particularities as it was specially designed for testing the particular hypotheses formulated in the present research. Alongside with the model fitting, are also shown the main results and related statistical validations. Such results were triangulated with the evidence shown in chapter 5, being the discussion and interpretation developed in chapter 8.

Finally, the conclusions and suggestions for further research are shown in chapter 9. Among other contributions to existing knowledge, which are to be introduced and discussed in later chapters, the research findings have implications for several existing national sets of GAAP which keep allowing a *traditional* form of business combinations accounting. As IASB pursued the changes in business combinations deliberated by FASB in the US, and as a very substantial number of countries use or allow IASB's GAAP, this has resulted in a dual business combinations accounting for dozens of countries worldwide. This is the case of many countries in the European Union which have a dual accounting system, where a more *conservative* accounting, based on the aged fourth and the seventh directives of the European Council, subsists alongside

with modern IASB standards, which were recently endorsed by the EU in 2005. Therefore, the finding on whether the *new* GAAP had economic consequences sheds light on the interest of an update of business combinations accounting at the domestic accounting level, in the scope of a *desirable* harmonised international accounting.

Chapter 2 Political Nature of Accounting Standard Setting and Developments on Business Combinations Accounting

2.1 Introduction

Alongside an ontological and epistemological discussion, the previous chapter offered an overview of early developments on accounting regulation, from which it was possible to conclude that in early times the accounting profession in the USA was mostly dominated by private institutions. However, government regulation was also present, and that was not exclusive to the 1930's, when the government regulated the financial reporting for a brief period. Furthermore, one could argue that political influence since then has been perennial, explicitly or implicitly, which is to be examined throughout this chapter.

The standard-setting process is therefore examined, with particular emphasis on the most recent decades in the USA, which includes the continuation of the discussion of why it was not possible so far to construct a comprehensive conceptual theory for accounting. Hence, this chapter covers the quest for a conceptual framework for accounting, co-substantiated by FASB's pragmatic developments on conceptual framework; the issues raised whenever accounting choice is in practice or being discussed; and the examination of the effects of lobbying and political influences on financial reporting regulation.

Finally, this chapter also includes an in-depth analysis of the lobbying undertaken with regard to business combinations accounting, which offers excellent examples of influences on the standard-setting policy from both political and corporate lobbying parties.

2.2 Towards a regulated conceptual framework for accounting

As referred to in Chapter 1, the accounting regulation started in the UK with the publication of the Joint Stock Companies Act in 1844. It was also in the UK, a few decades before, that the steam engine was invented, leading to a public steam railway age which would arrive in the USA shortly after. And regulation in the USA would begin exactly with the development of railways, following a period of frenetic construction and growth (Hendriksen & van Breda, 1992: 61). The previous chapter also referred to the accounting regulation in the USA, which was in charge of the AICPA from 1887 to 1934, and in charge of organisms related to AICPA's from 1936 until 1973, when FASB appeared on stage. This prevalence of private-sector regulation led Hendriksen & van Breda (1992: 59) to note that:

> "The period since 1887 might be called the "Century of the Certified Public Accountant" because it is this branch of the profession that has dominated accounting in the United States. So much so that many see public accountants and accountants as one and the same. This dominance is quite astonishing when one considers how long accounting has been in existence and that for most of those thousands of years it was performed by managerial accountants for managers.".

Consequently, there was a dramatic shift, as accounting became increasingly more important for external users, in opposition to its traditional role, being the accounting profession developing in a "self-regulation" mode.

Nevertheless, in the same year the AICPA (AAPA) was founded, financial regulation also began in the railway sector under the Interstate Commerce

Commission (ICC), created by the Interstate Commerce Act of 1887. The purpose of ICC was to regulate railway companies' practices, which were by then being accused of several market abuses, due to increasing economic power, often obtained through M&A deals (Burns, 1998).[39] The legacy of ICC was noteworthy, and not only for mergers in the railroad industry, as it also served as a model for numerous latter regulatory initiatives, including the SEC foundation. As regulation gradually overtook self-administered professionals in the USA, naturally including the accounting profession, Hendriksen & van Breda (1992: 59) also highlighted governmental and other interferences in terms of regulation:

> "This period could also be called the "Century of Financial Regulation", because for the better part of 100 years the U.S. government has sought to control the flow of financial information. This is equally astonishing when one considers that for thousands of years accounting went completely unregulated. What makes it even more remarkable is that almost all the empirical evidence gathered by academics in the past 20 years indicates that regulation of financial markets is less necessary than regulation of the airline industry, the telephone industry, or the trucking industry, all of which have been deregulated in recent years!".

Indeed, despite the deregulatory trends of the past decades, the financial reporting continued to be subject of many developments in terms of regulation and governmental interference. The process of building a conceptual framework for accounting constitutes an example that illustrates the increasing role of regulation during the 20th century.

The conceptual framework was intended to be an equivalent of a constitution, a large umbrella designed to encompass accounting objectives and practices. The

[39] The first railway merger in the USA occurred in 1838, when "Philadelphia, Wilmington & Baltimore" was created from the merger of "Baltimore & Port Deposit" with "Wilmington & Susquehana" (Burns, 1998). The development of the railway industry was so fast in the USA, that between 1884 and 1888, 425 M&A deals were recorded, and by the turn of the century, about one-sixth of the railway firms in the USA had been involved in consolidations (Association of American Railroads, undated).

FASB recognised such desiderate in a document entitled *Scope and Implications of the Conceptual Framework Project* (1976b). Accounting standards would be under the scope of a conceptual framework, just like a legal system in which laws are under a constitution. However, the adoption of this type of *juridical* structure was also an indication of the forthcoming "political nature of accounting standard setting" (Hendriksen & van Breda, 1992: 123). It became evident that the accounting construction process, primarily based in the accounting profession, would never be the same again.

Unsurprisingly, the political nature of the standard setting process led to a wave of criticism, as some of the worst fears from the accounting community were made real.[40] The way that the political process has influenced the standards setting process in the USA is widely documented in literature (see e.g. Watts, 1977; Watts & Zimmerman, 1978), being this topic to be subject of further examination throughout this chapter. The accounting profession seemed to have become a victim of itself, as its leaders (Hendriksen & van Breda, 1992: 83):

> "politically averse to government regulation and believers in the virtues of private enterprise, found themselves drawn into widespread and pervasive *self*-regulation in order to avoid what they perceived to be the greater evil of *external* regulation".

From a previous framework, from which GAAP were generated by accounting practice to a new era of increasingly tightening regulation, where standards tend "to be set reactively rather than proactively" (Hendriksen & van Breda, 1992:

[40] Some of such fears would be confirmed sooner than expected with the Watergate scandal. According to Hendriksen & van Breda (1992: 82), in 1973, after FASB took charge of the standard setting task, it was discovered that 17 major companies had made illegal political contributions. This event would jeopardise FASB's and even SEC's creditability. Eventually, the US Congress investigation would blame the FASB, and would urge the SEC to rule a "framework of *uniform* accounting principles". With the stakes at such level, the FASB had necessarily to act promptly in order to prepare a conceptual framework for accounting.

84).[41] This fate would continue until today, and is very unlikely to change under the currently in force paradigms.[42]

The construction of the conceptual framework was done throughout several stages. An early work assigned by the AICPA on accounting objectives, was produced by a study group, called Trueblood Committee, after Robert M. Trueblood.

According to Zeff (2004: 13), the 1960's had been a decade in which American companies and also the USA government, in some instances, "had lobbied insistently against the APB's proposed Opinions", leading to a wave of criticism. Such criticism would lead AICPA to establish the Wheat Study Group, as referred in Chapter 1, and also the Trueblood Study Group (Zeff, 2004). The Trueblood Committee's report, *Objectives of Financial Statements*, published in 1973, was based on a great extent on APB's APS 4. Based on this report, the FASB started immediately its own work on the conceptual framework.[43] As a result, it would publish later, in 1976, a Discussion Memorandum entitled *Conceptual Framework for Financial Accounting and Reporting: Elements of Financial Statements and Their Measurement*.[44] In that discussion memorandum, a hierarchy of elements in a conceptual framework for financial accounting reporting was set in accordance to the following top-bottom sequence: objectives, information needed, qualitative characteristics, fundamentals, standards, interpretations, and practices.

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[41] Vid. also pp. 246-257.

[42] Although some authors, such as Watts (2006), prospect a nebulous fate for the future of the accounting profession and regulation.

[43] Vid. paragraph 57, SFAC 1 (Financial Accounting Standards Board, 1978).

[44] Financial Accounting Standards Board (1976a). The Board's document raised a high public interest, as FASB "received 95 written communications responding to the Discussion Memorandum, and 20 parties presented their views orally and answered Board members' questions at the hearing" (paragraph 58, SFAC 1, Financial Accounting Standards Board, 1978).

FASB's discussion memorandum preceded the first piece of the conceptual framework: the Statement of Financial Accounting Concepts No. 1 (SFAC 1), *Objectives of Financial Reporting by Business Enterprises*, issued in 1978.[45] The SFAC 1 (Financial Accounting Standards Board, 1978), which was founded on the Trueblood Committee report, addressed the top layer of the conceptual framework hierarchy: the objectives of financial reporting.

Conceptually, financial reporting is usually referred to as a broad concept. For instance, Crowther (2002b: 1) epitomises the conventional role for corporate reporting in public companies as:

> "it provides a means for the organisation, or its representatives, to communicate the past actions of the company, the results of those past actions, and the intended future actions of the company. (...) Depending upon the perspective one takes, this communication may be to the owners of the business (i.e. the shareholders), the investors in the business, prospective future investors in the business, or to any permutation or combination of stakeholders who are associated with the business in any way.".

Nevertheless, as the author unveils four stages of evolution of corporate reporting in the UK, it is revealed that in a third stage of development, post--1975, a dramatic change occurred (Crowther, 2002b: 9):

> "No longer was the firm seeking to communicate internally – to members or potential members – but rather the focus was upon the external environment. (...) the emphasis changed to the future

[45] The high public interest continued throughout the entire due diligence process (paragraph 62, SFAC 1, Financial Accounting Standards Board, 1978):

> "The Board received 283 written communications on the subject of the August 1977 hearing, of which 214 commented on the objectives and 221 commented on the elements, and 27 parties presented their views orally and answered Board members' questions at the hearing. The Board issued an Exposure Draft of a proposed Statement of Financial Accounting Concepts on "Objectives of Financial Reporting and Elements of Financial Statements of Business Enterprises," dated December 29, 1977 and received 135 letters of comment.".

> prospects of the business becoming more important than the past performance.”.

Such change occurred with the publication of *The Corporate Report*, a document published in 1975 by the UK Accounting Standards Steering Committee. The financial reporting was therefore suffering major changes in both sides of the Atlantic.

Concerning the financial reporting, the FASB (Highlights, SFAC 1, Financial Accounting Standards Board, 1978) understood it as:

> “not an end in itself”,

but as

> “intended to provide information that is useful in making business and economic decisions”.[46]

As for the objectives of the financial reporting, they were summarised by FASB as (Highlights, SFAC 1, Financial Accounting Standards Board, 1978):

> “ - Financial reporting should provide information that is useful to present and potential investors and creditors and other users in making rational investment, credit, and similar decisions. The information should be comprehensible to those who have a reasonable understanding of business and economic activities and are willing to study the information with reasonable diligence.
>
> - Financial reporting should provide information to help present and potential investors and creditors and other users in assessing

[46] On the one hand, the issue of the users’ economic decisions is related to the economic consequences from changes in GAAP. On the other, the issue of the economic consequences from changes in accounting regulation is critical for the present research, as this thesis examines the possible economic effects of GAAP changes on the M&A activity. It is therefore important to understand the role of the users in the standard-setting process, as a change in the regulation may influence a user decision on a M&A deal, particularly at the managerial level. The issue of the possible economic consequences from changes in accounting regulation is to be referred in this chapter, being discussed further in Chapter 3.

> the amounts, timing, and uncertainty of prospective cash receipts from dividends or interest and the proceeds from the sale, redemption, or maturity of securities or loans. Since investors' and creditors' cash flows are related to enterprise cash flows, financial reporting should provide information to help investors, creditors, and others assess the amounts, timing, and uncertainty of prospective net cash inflows to the related enterprise.
>
> - Financial reporting should provide information about the economic resources of an enterprise, the claims to those resources (obligations of the enterprise to transfer resources to other entities and owners' equity), and the effects of transactions, events, and circumstances that change its resources and claims to those resources.".

Following early indications, the FASB kept the view of a financial reporting that needs to be user-orientated, i.e. that needs to be useful for decision-making. As for the user's hierarchy, "investors" and "creditors" were elected as the most important ones, although they are to be (Highlights, SFAC 1, Financial Accounting Standards Board, 1978):

> "used broadly and include not only those who have or contemplate having a claim to enterprise resources but also those who advise or represent them.".

The establishment of objectives by the FASB raised many questions and critiques. For example, some authors criticised it as missing originality, since objectives were merely carried from previous works, such as the Trueblood Committee (see e.g. Most & Winters, 1977). Among the questions raised, perhaps the most pertinent was the one pointing out the complexity of the users of the financial information. Ideally, the financial reporting should provide information relevant and useful for every user. However, the user's needs vary depending on its own nature, so it is impossible to satisfy the whole universe of users, particularly when the financial reporting is user-orientated.[47] Not

[47] It seems a paradox that user-orientated information cannot truly satisfy most of its users. However, this is a natural outcome from the confrontation of FASB's views versus users' heterogeneity.

surprisingly, the FASB selected the potential investors and creditors as the primary group of users, corroborating ASOBAT's primary focus on owners and creditors, and in faithful observance of the Securities Acts of 1933 and 1934. However, looking more carefully at FASB's intentions, one can argue that the board is admitting that the primary user is the individual and small investor, which is the one most deprived of financial information, when it is claimed that (Highlights, SFAC 1, Financial Accounting Standards Board, 1978): [48]

> "The objectives stem primarily from the needs of external users who lack the authority to prescribe the information they want and must rely on information management communicates to them.".

There was therefore a shift on the user's focus, as creditors continued to lose relevance to investors. The stewardship and accountability to shareholders was assumed as the main concern of financial reporting. This was a natural outcome of the rising importance of the investor, a noticeable phenomenon since the 1930's. It was also a consequence of an interference of politics in the accounting regulation. As Tinker et al. (1988) argue, accounting became a weapon in the social clash of wealth and income distribution, suggesting that the decision of electing a primary group of users has as much of political as of technical. It is argued that politics protect the public interest better than accountants, who are more likely to favour privileged groups, such as shareholders, or the banking industry.

Naturally, the establishment of a new era for accounting was subject to widespread criticism. The construction of a set of objectives orientated exclusively for external users, the primacy of the investor, and the influence of politics in the accounting regulatory-setting process, are indeed doubtful options. For example, one can wonder whether the investor primacy is appropriate; or whether the objectives of the key users can be extended to other

[48] Vid. Hendriksen & van Breda (1992 :129) for a better understanding of the underlying rationale. As Hendriksen & van Breda (1992: 83) note, it is the time of the "people's capitalism", where "ordinary folk would be encouraged to invest in corporations by the provision of relatively copious financial information".

stakeholders, such as the management, which some authors continue arguing that should be regarded as the primary user group (see e.g. Flegm, 1984).

The heterogeneity of the users of the accounting information was epitomised by Beaver (1989). He presented five main groups of constituencies in the financial reporting environment: investors, information intermediaries, regulators, management, and auditors. From each main group were then identified sets of subgroups. For example, for the main group of regulators, three subgroups were identified: FASB, SEC, and the US Congress; while for investors were identified: diversified vs. undiversified; active vs. passive; and professional vs. nonprofessional. It does not seem plausible to admit that different groups of users share the same common interests, as it does not seem plausible that subgroups may share common interests as well. Several questions may be raised. A passive investor who relies on financial intermediaries for investment decisions may reject the idea of financial information directed towards him. In another example, a diversified investor may not be interested in firm-specific information. In conclusion, Beaver concludes that users are less likely to be homogenous, and its heterogeneity carries great complexity and difficulties for regulators.

The FASB's views on accounting theory are necessarily pragmatic. This is reflected not only in the users' approach, but also in every aspect of the accounting regulation. The FASB's position on GAAP is a good example (Highlights, SFAC 1, Financial Accounting Standards Board, 1978):

> "Unlike a Statement of Financial Accounting Standards, a Statement of Financial Accounting Concepts does not establish generally accepted accounting principles.".

This assertion makes all the previous discussions on GAAP seem meaningless. The GAAP are simply to be established by the issuance of financial accounting standards, according to the developments in economic and financial environment, and following the evolution of users' needs, with particular evidence for the investor. Therefore, the conceptual framework serves as a basis

for continuing to develop the GAAP, but not for the development of the GAAP concept. In fact, it seems that the FASB was pleased simply to continue developing AICPA GAAP's. Moreover, it seems evident that FASB was not interested in getting involved into further in depth conceptual discussions on GAAP, which revealed to be such a fracturing issue.

In order to complete the conceptual framework, in accordance with the hierarchy set in the 1976's *discussion memorandum*, six more SFAC were issued by the FASB between 1978 and 2000.[49] The SFAC 2 (Financial Accounting Standards Board, 1980b) addressed the topic of qualitative characteristics of the financial information, while the fundamentals were treated in SFAC 5 (Financial Accounting Standards Board, 1984) and SFAC 6 (Financial Accounting Standards Board, 1985b).[50] Concerning the GAAP, they are essentially built upon standards, called *Statement of Financial Accounting Standards* (SFAS), and they may be accompanied by interpretations and technical bulletins.[51]

Despite the efforts of FASB, professional judgement upheld its critical importance in accounting. Regardless the infinite number of standards and interpretative documents that a standard setter may issue, professional judgment will always be a key factor to achieve the objectives of financial reporting. In face of the many hundreds of documents, and the thousands of

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[49] The current conceptual framework is composed by six statements, as SFAC 6 (1985b) superseded SFAC 3 (1980a).

[50] According to FASB (Highlights, SFAC 5, Financial Accounting Standards Board, 1984):

> "The fundamentals are the underlying concepts of financial accounting - concepts that guide the selection of transactions, events, and circumstances to be accounted for; their recognition and measurement; and the means of summarizing and communicating them to interested parties.".

Although the conceptual framework does not indentify the "fundamentals", they can be found in the APS 4 (e.g.: accounting entity, going concern, time periods).

[51] The FASB kept several AICPA's standards, called APB Opinions, either unchanged or amended. Some SFAS were issued to replace APB Opinions.

words that compose the current GAAP set, it is therefore not surprising that many argue this to be worthless work, and a waste of public resources. Among the critics, Seidler (1984) argued that is not possible to have conceptual frameworks in social sciences, while Gerboth (1987) claimed that the major mistake of the conceptual framework was the conviction that setting principles in advance would minimize later discussions on basic accounting issues.

It was also unsurprising that the pragmatic approach from FASB extended to other counterparts around the world, resulting in a shockwave for the accounting discipline as a whole. As Crowther (2002b: 23) notes:

> "These practical uses of accounting, as a means of running a business, contrast with the search by some writers for a philosophical base for accounting and a place for it in a wider societal context.".

Consequently, several authors suggested and even developed alternative accounting theories and different approaches, some of which with a sound philosophical basis (see e.g. American Accounting Association Committee on Concepts and Standards for External Financial Reports, 1977; Chambers, 1979; Danos, 1977; Hakansson, 1978; Laughlin, 1987; Mattessich, 1980; Morgan, 1988; Tinker, 1988; Wells, 1976, 1977; Whittington, 1980).[52]

Regardless all the alternative views, FASB kept its pragmatism, also becoming more susceptible for some *pragmatic* lobbying, consequently opening ways for regulatory pressures, as to be discussed further in this thesis (vid. e.g. Hendriksen & van Breda, 1992; Riper, 1994).

[52] For a different reading, it is also recommendable Mattessich (1995), which presents some curious analogies, such as the "onion model of reality"; and interesting confrontations, such as the analysis of the American ''positive accounting theory'' view versus the British ''critical--interpretive'' view of accounting.

2.3 Lobbying and political influences on standard setting

The building of a conceptual framework could have served to somewhat shield the accounting standard setting process from interferences, placing substantive aspects at the service of users' needs and on top of preparers' interests. However, this was not to be necessarily the case, as the standard-setters' perceived interest of users' needs often clash with the interest of the financial reporting preparers, consequently generating disagreements - in some cases loudly expressed - , as to be shown throughout this chapter.

It can be regarded as natural that the standard-setting process in the USA frequently involves compromising, as the FASB endeavours to create pronouncements that may gather support amidst parties with possible conflicting interests, such is often the case of financial reporting preparers versus users (vid. e.g. Hendriksen & van Breda, 1992; Schultz & Hollister, 2003). Indeed, financial reporting regulation in the USA is supposed to guarantee a proper open due process, as FASB is subject to rules of procedure that offer possibilities for the general public to judge and comment on accounting issues (Mezias & Chung, 1989). Nevertheless, the standard-setting policy does not rely necessarily on FASB only. Indeed, managers may try to influence the accounting standard-setting process directly, by writing comment letters to the FASB or by lobbying the SEC; but they may also act indirectly by lobbying the Congress in order to put pressure on the FASB or the SEC (Johnston & Jones, 2006: 196; Sutton, 1984). Unsurprisingly, the standard-setting process can therefore result contentious, as pressure may come not only from industries, professional associations and groups, and individual companies, but also from opposing forces such as the SEC, or *mighty* government agencies (vid. e.g. Schultz & Hollister, 2003).

As referred earlier, the US Congress delegated regulation on financial markets and financial reporting to the SEC that, in turn, would soon later delegate

financial reporting regulation to private accounting committees and bodies.[53] [54] Nevertheless, both Congress and the SEC would not resist interfering in several occasions. For example, AICPA's APB Opinion No. 2, *Accounting for the "Investment Credit"* (American Institute of Certified Public Accountants; Accounting Principles Board, 1962a) was overturned by the Congress, which by law allowed a different method, subsequently conceded by the APB in Opinion No. 4, issued with exactly the same title of APB Opinion 2 (American Institute of Certified Public Accountants; Accounting Principles Board, 1964). This controversial rearrangement did not find the approval of several APB's members, leading to some loud disagreements, as it was the case of Leonard Spacek, who did not contain his harsh criticism to such level of interference (American Institute of Certified Public Accountants; Accounting Principles Board, 1964):

> (Mr. Spacek) "believes this Opinion illustrates the accounting profession's complete failure in its responsibility to establish accounting principles that will provide reliable financial statements that are comparable among companies and industries, for use of the public in making personal investment decisions. He states there is no justification for sanctioning two contradictory practices to accommodate SEC and other regulatory bodies and some CPAs who have approved reporting the investment credit as, in effect, profit from acquisition rather than from use of property. This flouts Congress' clear intent in granting the investment credit, "to reduce the net cost of acquiring depreciable property." Alternative procedures under this Opinion can increase by up to 25 per cent the earnings otherwise reported. In this Opinion and in SEC's

[53] As FASB notes in its disclaimer (Financial Accounting Standards Board, 2007b: 1):

> "The SEC has statutory authority to establish financial accounting and reporting standards for publicly held companies under the Securities Exchange Act of 1934. Throughout its history, however, the Commission's policy has been to rely on the private sector for this function to the extent that the private sector demonstrates ability to fulfill the responsibility in the public interest.".

[54] For a theoretical discussion about delegation of regulatory authority from a public principal to a private agent regarding accounting regulation, vid. e.g. Zeff (1995), or Mattli & Büthe (2005).

> stated position, Mr. Spacek finds no word of concern for the investor, to whose protection both CPAs and SEC supposedly are dedicated. He believes this Opinion approves accounting of the type that precipitated the 1929 financial crisis, and that history is being repeated by actions of the very authorities created to prevent such catastrophes. He feels this breakdown in safeguards created to protect investors has resulted from fragmentation of responsibility for establishing accounting principles, and the only remedy is to create a Federally established Court of Accounting Principles with a prescribed basis for its decisions; this court would be independent of the profession and regulatory commissions, and its decisions would be binding on all, thus rescuing investors from their present abandonment.".

Nevertheless, such proposed Court of Accounting Principles, or likewise, was never created, and accounting principles theoretical conception continued to be overruled by pragmatism, often suffering from external interferences.[55]

AICPA's successor was also to be subject to interferences. For example, FASB's SFAS 19, *Financial Accounting and Reporting by Oil and Gas Producing Companies* (Financial Accounting Standards Board, 1977), issued by a narrow 4-3 vote, faced aggressive pressure from the oil industry against an imposed "successful efforts costing" method, leading the SEC to take action (vid. e.g. Zeff, 2007). Indeed, some fierce lobbying, particularly from small and medium--sized (SME) oil and gas companies, demonstrated clear opposition to the SEC regarding the discontinuation of the "full costing" method, which would, in turn, be transmitted to members of the Congress and of the government, such as in the case of the Justice and Energy federal department (Staubus, 2003; Zeff, 2007).

Following 12 days of public hearings and 2,700 pages of transcripts, the SEC would overrule FASB's standard on the matter by issuing the Accounting Series Release (ASR) No. 253, *Adoption of Requirements for Financial Accounting and Reporting Practices for Oil and Gas Producing Activities* (Securities and

[55] For more information on the Court of Accounting Principles vid. e.g. Spacek (1958), Ketz (2003), or Zeff (2001).

Exchange Commission, 1978; vid. e.g. A. J. Smith, 1981), proposing a new method, the "reserve recognition accounting", and maintaining the previous methods during a transition period (Gorton, 1991; Zeff, 2007). That would force FASB soon later to issue an embarrassing SFAS 25, *Suspension of Certain Accounting Requirements for Oil and Gas Producing Companies, an amendment of FASB Statement No. 19* (Financial Accounting Standards Board, 1979), suspending SFAS 19's effective date, a move regarded as a clear concession to the SEC (vid. e.g. Gorton, 1991; A. J. Smith, 1981; Zeff, 2007).

SFAS 19 was approved following a close voting, with dissidents justifying their decisions based on technical-substantive matters. In the case of SFAS 25 decision on SFAS 19 suspension, only two FASB board members dissented, but with some incisive criticism to the interferences made, as they have questioned the private-sector nature of the financial reporting regulation, and the role of FASB itself (Financial Accounting Standards Board, 1979):

> "Mr. Mosso and Mr. March dissent because they think that this action at least partially abdicates the Board's standard-setting responsibility. By suspending FASB Statement No. 19, the Board passes an opportunity to significantly narrow the range of accounting alternatives in the oil and gas industry and steps aside while the federal government attempts to resolve the issues. They think the Board should have retained Statement No. 19 as the duly adopted private-sector accounting standard, with an exemption for those companies (registered or nonregistered) electing to use the alternative full cost method permitted under SEC-prescribed rules. Although they disagree with the SEC decision that fails to adopt a standard for uniform use, in their view the Board's failure to narrow the numerous alternatives available to nonregistered companies to at least the two methods that registered companies must follow is not in the public interest. The absence of effective FASB-adopted standards may limit the Board from any significant role in the maintenance of these standards, including the successful efforts method of Statement No. 19. Mr. March and Mr. Mosso also believe more affirmative action would have placed the Board in a better position to maintain an active presence in this critical area of national

> concern and to reassert leadership in setting accounting standards for the oil and gas industry.”.

Nevertheless, private-technical dissented voices are hardly taken into consideration when government authority is in force. Indeed, later the SEC would *support* - i.e. request - FASB to develop a method following the requirements of ASR 253’s “reserve recognition accounting”, for which FASB duly issued SFAS 69, *Disclosures about Oil and Gas Producing Activities, an Amendment of FASB Statements 19, 25, 33, and 39* (Financial Accounting Standards Board, 1982), covering the due guidance for its implementation. Like SFAS 19, it was a close voting again, a 4-3 decision. Nevertheless, this time only technical-substantive argumentation was expressed, as no criticism to external influences was reported in the standard’s body text (Financial Accounting Standards Board, 1982).

More recently, Congress threatened to intervene unless the FASB would provide some relief in respect to fair value accounting, which led current FASB Chairman, Robert H. Herz, to testify about mark-to-market accounting before the US House of Representatives Subcommittee on Capital Markets, Insurance, and Government Sponsored Enterprises (Financial Accounting Standards Board, 2009; Investors Technical Advisory Committee, 2009), following active lobbying from the American Bankers Association (e.g. Beattie, 2009).

It is the mark-to-market issue and the controversial topic of fair value adoption, which has become increasingly notorious in recent years. FASB’s new rules for investments in the 1990’s materialised in SFAS 115, *Accounting for Certain Investments in Debt and Equity Securities*, (Financial Accounting Standards Board, 1993) and meant an increased use of fair value, which did not benefit financials industry’ valuations (Beatty et al., 1996). Unsurprisingly, share prices reaction for bank holding companies during the period surrounding SFAS 115 adoption was not favourable (vid. e.g. Beatty et al., 1996). Nevertheless the outcome for banks could have been worse in case FASB would not compromise, even if less than in other occasions. Indeed, limited concessions were made by

FASB following the comment letters received after the ED publication. According to the analysis made by Beatty et al. (1996: 92):

> "FASB's final positions on the specific issues raised in the ED were consistent with the preferences stated by the respondents except on the issues of addressing liability accounting and making portfolio transfers at fair value.".

Despite pressures from the SEC, and in spite of the active lobbying from banking and insurance industries, widely documented in the literature (e.g. Beattie, 2009; Schultz & Hollister, 2003), this time the main goals aimed from such influence would not be achieved, as with SFAS 115 financial industry had to report securities at fair value, meaning a higher likelihood of volatility in reported earnings and equity.

Fair value accounting continued to undergo further developments in recent years. With SFAS 157, *Fair Value Measurements* (Financial Accounting Standards Board, 2006), FASB's fair value approach was reinforced. Together with SFAS 159, *The Fair Value Option for Financial Assets and Financial Liabilities, Including an amendment of FASB Statement No. 115* (Financial Accounting Standards Board, 2007c), the FASB increased the possibilities of using fair value and reformed the accounting for investments, by amending SFAS 115.

However, following the current financial crisis, the financial industry lobbied again against fair value in order to achieve its adoption easing, arguing that during a period of such severe low valuations and low liquidity, resulting in a strong emergence of the so-called toxic financial assets, the use of fair value would result misrepresentative (e.g. Accountancy Age, 2008; Beattie, 2009; Investors Technical Advisory Committee, 2009; Katz & Westbrook, 2009). At the height of the financial crisis, in the autumn of 2008, Edward L. Yingling,

President and CEO of the American Bankers Association (ABA), was not retiring as he was influential by stating that (Katz & Westbrook, 2009):[56]

> "Given the importance of this issue, the impact it has on the crisis in the financial markets, and the seeming inability of the FASB to address in a meaningful way the problems of using fair-value in dysfunctional markets, we believe it is necessary for the SEC to use its statutory authority to step in and override the guidance issued by FASB".

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[56] According to the American Bankers Association (2009a):

> "Founded in 1875 and based in Washington, DC, the American Bankers Association brings together banks of all sizes and charters into one association. ABA works to enhance the competitiveness of the nation's banking industry and strengthen America's economy and communities. Its members – the majority of which are banks with less than $125 million in assets – represent over 95 percent of the industry's $13.3 trillion in assets and employ over 2 million men and women.".

Being ABA's mission described as (American Bankers Association, 2009a):

> "to serve its members by enhancing the role of financial services institutions as the preeminent providers of financial services. This mission is accomplished through federal legislative and regulatory activities, consumer education, research, and products and services that promote, educate, inform and support members.",

with a recognised and clear lobbying purpose (American Bankers Association, 2009b):

> "Speaking for the entire banking industry and its two million employees gives ABA a powerful voice - on Capitol Hill, with the Regulatory agencies, in the courts and through the media. The resources in this area will help you keep abreast of the current GR priorities, as well as provide information on important issues, recent legislative or regulatory updates and key staff contacts within ABA.".

Therefore the FASB and the fair value accounting become under fire, leading the Congress to threaten to take away standard-setting policy from the FASB, and forcing FASB chairman to take action. An excerpt from the 12 March 2009 hearing of a House Financial Services subcommittee follows (Investors Technical Advisory Committee, 2009; Katz & Westbrook, 2009):

> *"You do understand the message that we're sending?* panel chairman Paul Kanjorski, a Pennsylvania Democrat, asked Herz.
>
> *Yes, I absolutely do, sir*, Herz replied.
>
> Republican Ackerman followed Chairman Kanjorski's comment, stating: *I think what the Chairman said is if you don't act we will.*
>
> After hesitating, Herz said he would try to get a new fair value rule finished within three weeks.
>
> *The financial institutions and their trade groups have been lobbying heavily,* Herz said in an interview after the hearing.
>
> *Investors don't lobby heavily*", he added.

Four days after such clear pressure, the FASB proposed an overhaul of fair value accounting, that according to Bloomberg could improve banks profits by more than 20 percent (Katz & Westbrook, 2009).

This evocation from FASB's chairman of lobbying, made as a result of a clear political pressure, may resemble an embarrassing admission. Far from true, far from new, one could argue. For example, Fogarty et al. (1994), refer that earlier FASB leaders explicitly recognised political interferences in standard--setting policy (vid. e.g. M. Armstrong, 1977; Kirk, 1978; Wyatt, 1986). However, Fogarty et al. (1994: 25) also note that admitting that accounting is political it does not necessarily result in the acceptance of such a situation (Solomons, 1978, 1991). Furthermore, Fogarty et al. (1994: 25) pinpoint that many accounting professional leaders believe that standard setting should be

insulated from politics (e.g. M. Armstrong, 1977; Kirk, 1978, 1986; Wyatt, 1986, 1990). In terms of *realpolitik*, anecdotal evidence suggests that standard-setting accounting policy continues to be influenced by corporate lobbying activity, which often results in pressures on the SEC and, whether necessary, even directly on the Congress and governmental agencies (vid. e.g. Beresford, 1989, 2001; Hinchman, 2000; Johnston & Jones, 2006).

As Herz admitted, preparers are indeed more willing and prepared for lobbying than investors, who are the weakest link in the equation. In the fair value case, the giant ABA met the Congress for another convenient alignment. Nonetheless, it is a fact that such interference could not avoid criticism and reactions from notable individuals and private associations.

Indeed, several individual and investor-advocate groups, opposed to this kind of arrangements that would enable banks to put off reporting losses, by allowing to use internal valuation models instead of market prices (Katz & Westbrook, 2009). For example, former SEC chairman Arthur Levitt, qualified them as outrageous threats (Katz & Westbrook, 2009):

> "What disturbs me most about the FASB action is they appear to be bowing to outrageous threats from members of Congress who are beholden to corporate supporters".

Furthermore, Conrad Hewitt, a former chief accountant at the SEC, meanwhile recognised that representatives from the ABA, American International Group Inc. (AIG), Fannie Mae, and Freddie Mac, have all lobbied him since 2007 in order to obtain the suspension of fair value accounting (Katz & Westbrook, 2009).[57]

Investors versus business interests or a David versus Goliath fight. Nevertheless, it is relevant to be aware that *David* has also an official voice within FASB, namely through the Investors Technical Advisory Committee (ITAC). The

[57] For more pieces of evidence about lobbying on this issue, vid. e.g. Katz & Westbrook (2009).

ITAC is an advisory panel of investors that was established by the FASB to act as a barometer for investors relying on accounting rules, whose members include, among others, representatives from the CFA Centre for Financial Market Integrity, and analysts from Moody's Corp, Standard & Poor's, JP Morgan Securities, and from the California Public Employees' Retirement System (Accountancy Age, 2009; Investors Technical Advisory Committee, 2009).[58]

On 15 June 2009, the ITAC, which, obviously, advocated that fair value accounting should be required for all financial instruments regardless the financial crisis conjuncture, sent an Unsolicited Comment Letter to FASB's trustee, the FAF, with a set of proposals intended to help establish and maintain FASB's independence (Investors Technical Advisory Committee, 2009). In this letter, the ITAC accused the FASB of being losing its critical independence of action (Investors Technical Advisory Committee, 2009: 2):

> "The purpose of this letter is to share with the Trustees our grave concerns about what we believe to be a substantial erosion in the independence of the accounting standard setting process as

[58] According to the ITAC (Investors Technical Advisory Committee, 2009: 1):

> "The ITAC was established by the FASB for the stated purpose of serving as a standing resource to the Board and FASB staff that provides technical accounting advice, from the investors' perspective, on current projects. The ITAC also identifies critical accounting and financial reporting deficiencies that require the Board's attention and proposes new items to be added to the Board's agenda, both major projects and technical application and implementation activities. The ITAC provides investor perspectives on the implementation of new standards.
>
> The ITAC membership comprises thirteen investment professionals who are technically proficient in financial reporting and experienced in the analysis and use of financial statements. The members serve on an unpaid basis and have committed to devote significant amounts of their time and resources to assist the FASB in its mission to enhance financial reporting.".

> evidenced by recent events and a recent weakening of already inadequate accounting standards.",

therefore demanding necessary action:

> "Given the disturbing potential for certain weaknesses to undermine the quality of the standards issued by the Board going forward, and further erode investor trust and confidence in financial reporting at a time of financial crisis partly attributable to poor transparency, we believe it is crucial that the Board and its trustee, the FAF, take swift and appropriate actions to protect and preserve the integrity of our financial reporting system.".

A clear mention to the corporate and political pressures over fair value accounting changes was also made (Investors Technical Advisory Committee, 2009: 3):

> "Even as these problems with the financial reporting infrastructure have become apparent, special interests and their agents, including some from the same financial institutions that were the original source of much of the current crisis, have worked to influence certain members of U.S. Congress to bring political pressure against the FASB and the U.S. Securities and Exchange Commission ("SEC") to further weaken or even overturn the reporting standards for the trillions of dollars of "toxic" securities that led to the crisis.",

To summarise, after decades of historical cost accounting dominance and debate, it now seems that fair value, or mark-to-market accounting, has become another major source of everlasting discussions focused in financial reporting, which seems to be increasingly subject to reporting volatility and to convenient regulation changes – also contributing in general for a more volatile reporting. Financial reporting also seems increasingly captive of corporate lobbying and

political pressures, propelling controversy among preparers, users, practitioners, and academics.[59]

The tracking record of political pressures and industry lobbying that the FASB and its predecessors have faced is a long one. Indeed, besides the topics referred, other accounting issues in recent decades, including leasing, or stock options accounting, led to all kind of pressures and active lobbying (vid. e.g. Dechow et al., 1996; Zeff, 2002). Whenever the FASB discusses a relevant financial reporting issue, that will necessarily generate reporting *loses*, one should expect a reaction from the aggrieved parties, which will likely result in to a *help request* from the interested parties to the SEC and/or to the Congress of the USA. In terms of theory of examination of corporate decision to resist FASB standards, Elbannan & McKinley (2006), developed a theoretical framework that specified the conditions under which corporations are likely to resist financial reporting standards, by examining three levels of determinants analysis were resistance occurs: the standard, the corporation, and the corporation's industry.

As described throughout this section, lobbying and political influences on standard setting is a common phenomenon that can lead to pernicious effects. Schultz & Hollister (2003), using the case of the development of SFAS 115 to illustrate the pressures surrounding the standard-setting process, concluded that there is a tendency to make GAAP logically inconsistent; ensuring that some interested party is unhappy with the standards produced; ensuring changes in GAAP are inevitable, and also that it will be difficult to change standards quickly (P. W. Miller et al., 1998). Therefore, it appears to be the case that accounting regulation may also work to feed itself.[60]

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[59] For a recent discussion about pros and cons of fair value accounting from an academic perspective, vid. e.g. Laux & Leuz (2009) which, despite acknowledging difficulties of fair values implementation, do not regard historical cost accounting as a solution.

[60] Also to be considered as potentially disturbing is whether financial reporting can be used as a political currency (vid. Ramanna & Roychowdhury, 2008).

It therefore seems that corporate and political pressures do play a critical role in financial reporting regulation, being business combinations a fine example of this type of interferences, as to be examined furthermore in this thesis.

2.4 Business combinations in the USA: an under pressure accounting issue

> *If we were to assess the amount of time spent on questions of pooling versus purchase, we'd find that this is the most costly accounting issue we've ever had in the US.* Arthur Wyatt[61]

The history of business combinations accounting in the USA is necessarily short in time, as M&A lifetime only dates back to around 19th century, and, as discussed in chapter 1, regulated financial reporting is an even more recent phenomenon. However, despite this being a brief period of time, the history of business combinations is very rich and long in terms of accounting developments and events. Indeed, business combinations proved to be a long-running controversial accounting issue (Ribeiro & Crowther, 2006; Zeff, 2004). Supported primarily in Rayburn & Powers (1991), Wyatt (1963), and Carmichael et al. (1999), a brief review on some critical developments follows.[62]

The goodwill concept precedes in time business combinations accounting.[63] However, what matters in the business combinations context is purchased goodwill, i.e., the difference between the price paid for completing the deal, less the net value of assets, deducted from liabilities, measured at fair value. Nevertheless, several evolutions in generic goodwill accounting are to be

[61] Former chairman of Arthur Andersen and FASB member.

[62] Besides this literature it is recommendable to consult G4+1 Position Paper (1998), particular its appendix, for a review and for a better understanding of more recent developments in business combinations and goodwill accounting.

[63] For literature on early times in goodwill accounting see e.g. Dicksee & Tillyard (1906), Hatfield (1909), Yang (1927), Preinreich (1939), American Institute of Accountants; Committee on Accounting Procedure (1944), or R. H. Nelson (1953). For a more recent view on goodwill regulation see e.g. Holgate (1990), or Nobes (1992).

mentioned whenever considered appropriate for the understanding of the developments in business combinations accounting.

According to Wyatt (1963), in the early 20th century, business combinations were essentially considered as acquisitions, and therefore a single method was used to account for: the purchase acquisition. Wyatt (1963: 20) also notes that the accounting profession had long assumed as "GAAP" that:

> "a new corporation could not begin operations with a balance in earned surplus. Or, stated more positively, earned surplus was presumed to have arisen from profitable operations of the entity on whose balance sheet it appeared.".

Therefore, in a purchase acquisition, any retained earnings would not be simply carried forward to the new entity, as those were presumed to have resulted from profitable operations of the purchased entity. However, as Wyatt (1963: 20) refers, some business combinations that occurred in the 1920's involved mere changes in the form of the entities, "without any real change in substance", as illustrated bellow:

> "For example, Company B and Company C, both subsidiaries of Company A, could be consolidated in a new Company D, or they could be merged, with the resultant entity being either Company B or Company C. Under these circumstances it appeared logical to carry forward the combined earned surpluses of the constituent companies to the new entity. This deviation from the general rule that a new corporation should not begin its existence with a balance in earned surplus was apparently well established by 1932.".

Therefore, by the 1930's it was starting to be widely accepted as a way to account for consolidations differently. And soon later, during the 1940's, as the number of combinations completed and paid through an exchange of securities increased, the term "pooling of interests" made its first appearance. According to Wyatt (1963: 22), pooling of interests:

> "was used to describe certain combinations in which the constituents had previously been so closely related that the existence of arm's-length bargaining was questioned. In these cases the newly emerging entity wished to state its asset values at their fair value at the time of the combination, this value being measured by the value of the securities exchanged in the combination transaction.".[64]

Despite the increasing use of pooling of interests, purchase accounting remained as the standard method for business combinations. In the early 1940's, Paton (1943) considered the purchase acquisition as the "proper" method, while pooling usage was "questionable".[65] However, by the late 1940's the high number of combinations completed through the exchange of securities, rather than payments in cash, led many accounting professionals to favour pooling of interests (Wyatt, 1963). The shift in payment for combinations, from cash to stock, meant that shareholders of the acquired firm would continue to own capital, but from the bidder, or in a newly created entity. Therefore, as it was no longer a sale of assets, it seemed logical to not revalue assets of the target entity.

The two methods of business combinations accounting become generally accepted in practice since World War II in the USA, but without being subject to any regulation. This gap was filled by the Accounting Research Bulletin (ARB) No. 40, *Business Combinations*, the first official pronouncement in business combinations, issued by AICPA's Committee on Accounting Procedure (CAP) in 1950 (American Institute of Accountants; Committee on Accounting Procedure, 1950). This statement allowed the use of pooling if certain broad conditions could be met (based on a set of four criteria). Otherwise, purchase accounting was to be used. Pooling of interests was considered as a combination

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[64] The term pooling of interests was first used in a Federal Power Commission in 1943. Henceforth "pooling of interests", "pooling of interests method", and "pooling" will be used interchangeably in this thesis as terms with the same meaning. Idem for "purchase acquisition", "purchase accounting", "purchase method", and "acquisition method".

[65] Op. cit Wyatt (1963: 21).

in which ownership interests continued, while purchase was understood as new ownership interests.

By then the use of pooling was not significant, as purchase accounting "did not necessarily result in charges against future reported earnings" (Walter, 1999: 39). However, with the publication of ARB No. 43, *Restatement and Revision of Accounting Research Bulletins*, issued in 1953 (American Institute of Accountants; Committee on Accounting Procedure, 1953), the CAP eliminated the option "to charge the excess of purchase price over the acquired firm's book value to a capital account (called surplus)" (Wyatt, 1963, op. cit. Walter, 1999: 39). Consequently, acquirers could no longer avoid amortisation charges with negative effects in reported earnings. Naturally, pooling of interests became far more attractive than purchase accounting for bidding companies' management.

As pooling's popularity increased, the CAP felt compelled to tighten the criteria required for its use. Accordingly, it issued the ARB No. 48, *Business Combinations*, in 1957 (American Institute of Accountants; Committee on Accounting Procedure, 1957). The ARB 48 superseded ARB 43's chapter in business combinations and revised the criteria for pooling qualification set in ARB 40. In terms of the main idea, according to ARB 48, a pooling of interests may take place when (paragraph 4, ARB 48):

> "the holders of substantially all of the ownership interests in the constituent corporations become the owners of a single corporation which owns the assets and businesses of the constituent corporations, either directly or through one or more subsidiaries".

Therefore, mergers and consolidations can continue to be considered for pooling of interests if certain conditions could be verified.[66] In opposition (paragraph 3, ARB 48):

> "a purchase may be described as a business combination of two or more corporations in which an important part of the ownership

[66] Vid. paragraphs 4-6 of ARB 48 for pooling of interests requirements.

> interests in the acquired corporation or corporations is eliminated or in which other factors requisite to a pooling of interests are not present.".

As in ARB 40, the purchase method is more likely to be adopted for corporate acquisitions. However, the implementation of the *refurbished* requirements of ARB 48, which were supposed to tighten the requirements for pooling, proved to fail soon after. As Wyatt (1963: 61) notes:

> "by the late 1950's, the approach to the analysis of a combination transaction appeared to be that the *absence* of a given criterion should not *prevent* the transaction from being a pooling of interests if other features suggested that the treatment was appropriate.".

In practical terms, pooling of interests continued to be a vague concept, and such lack of definition led to a loose interpretation of ARB 48 requirements (see also Sapienza, 1961). Consequently, both methods were widely used and during the 1960s pooling of interests became an even more popular method, certainly helped by the M&A wave which occurred in this decade (see e.g. Sapienza, 1962). More than 20,000 deals were completed between 1963 and 1969, about half of them at the peak 1968-69. However, what contributed more to the success of pooling was the possibility of an acquirer, suffering from declining profits, to trigger a financial performance turnaround through M&A with a company with steady or rising profits. As to be discussed in chapter 3, this period was epitomised by big conglomerates and diversification. Hostile takeovers were the fastest and preferred way to growth. And M&A deals could qualify for pooling in a relatively simple way. As Wyatt (1967: 211-212) recognises:

> "the accounting for a combination is commonly decided in advance of consummation of the transaction".

After some 20 years of standard-setting policy, CAP's role was about to come to an end, amidst increasing criticism and allegations of incapacity of the

Committee to reach agreements in several accounting issues, such as changing prices, deferred taxes, pensions, and, has highlighted in this section, business combinations accounting (Zeff, 2001). The increasing use of pooling of interests and the failure of CAP to effectively constrain its adoption contributed to decrease its reputation and has increased the dissatisfaction with the pathway of business combinations accounting.

The CAP and the APB, or two sides of the same coin: the AICPA. Therefore it is not so much surprising that APB's fate would be similar to its predecessor: failure to convincingly face criticism and disagreement with their standard--setting policy. Rising opposition to the AICPA's APB, which replaced the CAP in 1959, and criticism about the use of pooling of interests, led AICPA to publish two accounting research studies intended to discuss business combinations and goodwill accounting treatment: ARS 5 (Wyatt, 1963) and ARS 10 (Cattlet & Olson, 1968).[67] Both these two AICPA's ARS expressed opposition to pooling usage. Of particular importance, Wyatt's study raised many doubts about the appropriateness of existing business combinations accounting, and about the use of pooling in particular (see e.g. Curran, 1964; Goldberg, 1964; Sapienza, 1964a, 1964b). Similarly, in its famous ASOBAT document, the AAA (1966) has also suggested to abolish pooling of interests. Many other voices would join the business combinations accounting discussion, primarily to express criticism to pooling (see e.g. Briloff, 1967, 1968; M. L. Davis, 1991; Eigen, 1965; L. C. Phillips, 1965; Rosenfeld & Rubin, 1985).[68]

Requests also started to be made to the APB to move forward in order to clarify the business combinations accounting issue (see e.g. Wyatt, 1965). However, the abolition of pooling was not favoured by many practitioners (see e.g. Holsen, 1963), and by the industry, as such a restriction would force to recognise goodwill, leading to a reduction in operational results, i.e., to a

[67] ARS 5 (Wyatt, 1963) was quoted several times before in this section.

[68] Several authors (e.g. Wyatt 1967: 211-212), reported abuses in pooling use, such is the case of retroactive pooling: "the *nunc pro tunc* change from purchase-type accounting to pooling-type accounting in recording a corporate merger" (Mosich, 1968: 352).

reduction of income without tax benefit (Sapienza, 1964a). Some were even so convinced about the need and superiority of pooling that argued that (Snavely, 1968: 88):

> "The purchase method should, for the most part, be discontinued because it makes financial statement interpretation more difficult than necessary".

The combination of a *loose* business combinations accounting and of professional interests, particularly from finance, resulted that pooling of interests became predominant in the second half of the 1960's (Hong et al., 1978).[69]

Following ARS 5 and ARS 10 recommendations and related comments, and also the increasing wave of criticism over pooling, it was not possible any longer for APB to remain indifferent. Moreover, the visibility of pooling was increasing steadily, and so was its success. But pooling of interest's fate was to become a victim of its own success.

Although it was urged to act, it was not possible to reach a consensus in AICPA's APB about the selection between purchase and pooling of interests method; about how to capitalize goodwill and; if so, whether or not to amortise it (Carmichael et al., 1999). APB would finally issue an Exposure Draft (ED), *Proposed APB Opinion, Business Combinations and Intangible Assets*, in February (1970d), proposing to restrict substantially, and *effectively*, the use of pooling of interests; and to make mandatory amortisation of purchased goodwill, for a period up to 40 years, in opposition to write off directly against surplus.

APB's proposals led to immediate negative reactions from academics, professionals, and from the industry (vid. e.g. Hendriksen & van Breda, 1992; Leftwich, 1981). For instance, Backman (1970: 47) gave an economic outlook on

[69] Vid. e.g. figures from a 1955-58 study – 142 out of 263 mergers used pooling (Gagnon, 1971), versus the period 1966-67 – a study of 189 mergers revealed that pooling was used in 176 cases (R. M. Copeland & Wojdak, 1969).

the APB changes proposal and warned about the possible "bad economics" of the heavy burden of goodwill amortisation. At the same time he cast serious doubts about the APB preference of purchase method over pooling, as he believed purchase use would result in earnings being subject to *inflationary forces*. Wakefield (1970) cast an even worst prospect, suggesting that the new proposals would damage the M&A activity, resulting in "harm to the economy".[70] This type of argument would continue to be used throughout the lobbying history of goodwill and business combinations accounting.

Although most critics demanded discontinuation of pooling of interests, APB seemed forced to compromise and to maintain pooling of interests, even if in a *restricted* version. The discussions were long, and the board's delay was resulting in additional pressure. Finally, under great pressure and broad contestation, including threats of legal action against, APB opted to maintain both methods and it published Opinion No. 16, *Business Combinations* in August 1970 (American Institute of Certified Public Accountants; Accounting Principles Board, 1970b).[71] Simultaneously APB also issued Opinion No. 17, *Intangible Assets*, which confirmed capitalisation and amortisation of goodwill (American Institute of Certified Public Accountants; Accounting Principles Board, 1970c).[72] As Zeff (2003a: 198) pointed out:

> "the two Opinions were regarded more as the result of intense lobbying by industry than the product of sound thinking and analysis.".

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[70] As an excellent example of dramatisation (Wakefield, 1970: 36):

> "Consistency, comparability, and historic costs are the very foundations of modern day accounting practice. The new proposals will significantly undermine all three. The proposals of the Accounting Principles Board bring to mind the picture of a misguided Samson tearing down the pillars of his own house, under the impression that it is the house of Philistines".

[71] The effective date was for business combinations initiated after 31 October 1970.

[72] The effective date was for intangible assets acquired after 31 October 1970.

Indeed, the decision on pooling of interests maintenance was everything but consensual among the board (American Institute of Certified Public Accountants; Accounting Principles Board, 1970b):

> "Messrs. Davidson, Horngren, and Seidman dissent to the Opinion because it seeks to patch up some of the abuses of pooling. The real abuse is pooling itself. On that, the only answer is to eliminate pooling.".

The possible impacts on M&A activity suggested from the industry were also dismissed by one the dissenting members of APB (American Institute of Certified Public Accountants; Accounting Principles Board, 1970b):

> "Some say that to eliminate pooling will impede mergers. Mergers were prevalent before pooling, and will continue after. Accounting does not exist to aid or discourage mergers, but to account for them fairly. Elimination of pooling will remove the confusion that comes from the coexistence of pooling and purchase accounting. Above all, the elimination of pooling would remove an aberration in historical-cost accounting that permits an acquisition to be accounted for on the basis of the seller's cost rather than the buyer's cost of the assets obtained in a bargained exchange.".

Despite all the criticism from many accounting experts and regulators, understandably not necessarily supported by the companies, APB managed somewhat to compromise, mitigating criticism from opponents of pooling by setting a set of 12 criteria requirement, to meet cumulatively, which constrained significantly the qualification of a deal for a pooling, enforcing the use of purchase method.[73]

[73] Vid. the twelve conditions for pooling in APB Opinion 16 (Paragraphs 46-48).

Nevertheless, the fate of APB was set: it would be replaced by the FASB in 1973.[74] Surprisingly, APB Opinion 16 and No. 17 would survive for more than thirty years, not necessarily untroubled. Immediately after the publication of APB Opinion 16, in a time-frame of around 3 years, the AICPA issued 39 Interpretations, and the SEC issued 3 ARSs, in order to provide additional guidance to the implementation of the pooling criteria (G4+1 (Organization) & International Accounting Standards Committee, 1998). The result: a progressive reduction in the number of companies qualifying for pooling of interests over time.

APB Opinion 17 required the recognition of intangible assets acquired in a business combination as well as the amortisation of purchased goodwill and other intangible assets over a period not to exceed 40 years. Consequently, a significant number of companies had to start recognising purchased goodwill: from less than 200 before 1970, to more than 400 afterwards, in a sample of 600 companies (vid. Fig. 2.1). The new GAAP have also resulted in a boom on the number of companies amortising purchased goodwill, which have become mandatory. Indeed, following the APB Opinion effectiveness, the majority of the 600 companies surveyed by AICPA (American Institute of Certified Public Accountants, 1968-2003) had goodwill amortisations: from less than 40 companies, to more than 250 few years after 1970. The intangible assets not being amortised shown in Fig. 2.1 refer to assets acquired prior to the effective date of the Opinion, and its figures become irrelevant as time passed, because

[74] According to Carmichael et al. (1999: 1-32):

> "The APB was weakened by nagging doubts about its independence, the inability of its part-time members to devote themselves entirely to the important problems confronting it, and the lack of coherence and logic of many of its pronouncements, which resulted from having to compromise too many opposing points of view".

the amortisation periods of these pre-1970 intangible assets were progressively ending.[75]

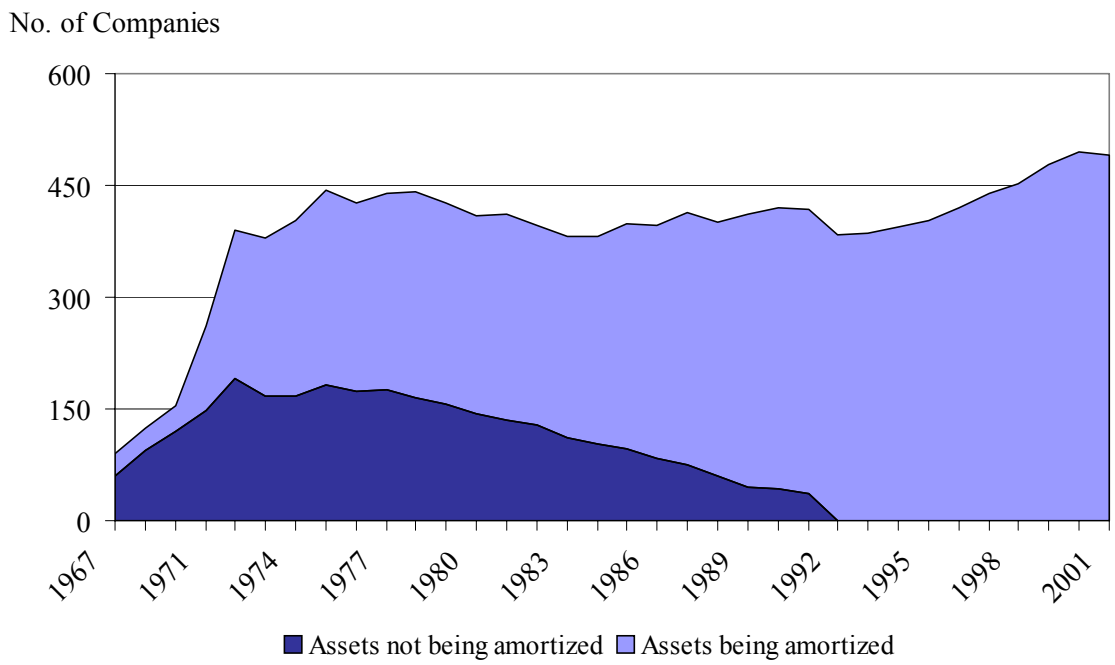

Fig. 2.1 Goodwill recognised in business combinations, 1967-2001
Data source: based on a dynamic sample of 600 firms used by AICPA in *Accounting Trends & Techniques*, several ed. (American Institute of Certified Public Accountants, 1968-2003).

With the *new* business combinations accounting GAAP, the companies did not lose the pooling possibility, but now the odds of avoiding goodwill, minimising a negative impact on earnings, become noticeably reduced. This compromise, together with the replacement of AICPA's APB by FASB led to some calm on the matter. However, the business combinations *hot* topic returned to the stage in the 1990s. The increase in M&A activity, with two M&A waves in late 1980s and in the 1990s, remarkable by their unprecedented magnitude, brought a renewed visibility to business combinations that would not escape FASB's

[75] AICPA did not provide information about the number of companies with assets not being amortised after 1991, presumably due to their insignificance.

notice. As FASB notes (paragraph B5, SFAS 141), the increase in M&A activity:

> "brought greater attention to the fact that two transactions that are economically similar may be accounted for by different methods that produce dramatically different financial statement results. Consequently, both the representational faithfulness and the comparability of those financial statements suffer.".

In addition (paragraph B6, SFAS 141):

> "many perceived the differences in the pooling and purchase methods to have affected competition in markets for mergers and acquisitions. Entities that could not meet all of the conditions for applying the pooling method believed that they faced an unlevel playing field in competing for targets with entities that could apply that method.".

The momentum offered an opportunity that had to be seised, as business combinations accounting presented many inconsistencies that had to be fixed in order to improve comparability not only in the USA, but also at international level. The topic proved to be a Pandora's box in the past, well represented by the wave of criticism that AICPA's APB suffered, and therefore such deep and strong criticism should no longer be ignored. Among the most important critics to take into consideration was APB decision to keeping accounting choice, by not simply discontinuing the use of pooling of interests (see e.g. Wyatt, 1972).[76]

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[76] APB Opinion 16 was approved by the minimum margin, as 6 members in 18 dissented (two--thirds needed). Broeker, Burger, and Weston dissented because they believed "that, except for combinations of companies whose relative size is such as to indicate a significant sharing of ownership risks and benefits, business combinations represent the acquisition or purchase of one company by another and that accounting should reflect that fact." (American Institute of Certified Public Accountants; Accounting Principles Board, 1970b) In a more radical approach, Davidson, Horngren, and Seidman dissented as they believed the Opinion to seek "to patch up some of the abuses of pooling. The real abuse is pooling itself. On that, the only answer is to eliminate pooling." (American Institute of Certified Public Accountants; Accounting Principles Board, 1970b).

Another focus of contestation was the decision to require amortisation of goodwill and other intangible assets in a period of up to 40 years, ignoring assets having indeterminate lives as, for instance, perpetual franchises (American Institute of Certified Public Accountants; Accounting Principles Board, 1970c). This led 4 members of the Board to dissent, as they found such a requirement as much as inappropriate as arbitrary (American Institute of Certified Public Accountants; Accounting Principles Board, 1970c):[77]

> "Whether amortization is appropriate depends on the particular circumstances of each case, including the evidence of increases or decreases in the value of such assets. In some cases, the facts may indicate maintenance or enhancement rather than diminution of value of the intangibles. In such cases, amortization is inappropriate. In other cases, the useful life may be determinable; then the cost should be amortised by systematic charges to income over the estimated period of usefulness. In all cases, the amortization of intangible assets should be used on professional judgment, rather than arbitrary rules.".

In addition to the widespread criticism from practitioners, companies, and academicians, "arbitrary" and "inappropriate" are adjectives that some APB members used to describe key rules prescribed by the APB Opinions on business combinations accounting, for who maintaining pooling of interests method is no less than a "real abuse" (American Institute of Certified Public Accountants; Accounting Principles Board, 1970b, 1970c). Indeed, the continuation of pooling meant holding the accounting choice in business combinations accounting and also consequently a string of issues, including the possibility of further lobbying, as to be examined in the next section.

[77] Burger, Davidson, Hellerson, and Horngren were 4 of the 5 members of APB that dissented on APB Opinion 17.

2.5 Accounting choice and business combinations accounting

As will be examined in this section, the existence of accounting choice constitutes a threat to the financial reporting credibility and often instigates lobbying actions. As referred earlier, the 1960's were marked by persistent lobbying from the business community to APB's proposals, to which the government of the USA would also adhere in some instances. One of the reasons for such active lobbying was related to the increasing awareness of managers concerning the importance of accounting choice. Moreover, the accounting choice was increasingly regarded as strategic in the case of M&A activity. As Zeff (2004: 13) notes:

> "Company executives were awakening to the strategic importance of flexibility in the choice of accounting methods, especially when engineering, or defending against, company takeovers.".

And it is a fact that inner issues at AICPA's board made it unlikely to cope with lobbying pressures, tainting its deliberations (Zeff 2004: 13):

> "Questions were raised whether a part-time board, such as the APB, could stand up against such pressures, because the accounting firms represented on the board had clients with vested interests in the outcome of the board's deliberations. Many observers concluded that research had not contributed to a resolution of difficult accounting questions, as few of the APB's *Accounting Research Studies* seemed to have an impact on the board's thinking.".

Together with APB's insufficiencies, the controversy surrounding business combinations accounting proposals and final Opinions would also greatly contribute to its failure, as pinpointed by Zeff (2004: 13):

> "Three Big Eight accounting firms are so critical of the intense 'political' lobbying of the APB leading up to *Opinions* 16 and 17 that they announce they have lost confidence in the APB as a source of sound financial reporting.".

Indeed, the incapacity of APB to reduce accounting choice procedures undermined its credibility. As referred in paragraph 132 of SFAS 19 (Financial Accounting Standards Board, 1977):

> "One of the principal criticisms of the work of the FASB's predecessors that led to creation of the FASB was that they did not sufficiently narrow or eliminate free choice accounting alternatives. A report entitled Federal Regulation and Regulatory Reform (the "Moss Report") issued in 1976 by the Subcommittee on Oversight and Investigations of the U.S. House of Representatives and a report entitled The Accounting Establishment (the "Metcalf Report") prepared in 1976 by the staff of the Subcommittee on Reports, Accounting and Management of the U.S. Senate were both strongly critical of the availability of alternative accounting principles. In its November 1977 report, "Improving the Accountability of Publicly Owned Corporations and Their Auditors," Senator Metcalf's Subcommittee concluded that "uniformity in the development and application of accounting standards must be a major goal of the standard-setting system.""

SFAS 19, which was referred earlier in this chapter, also offers specific arguments for the oil and gas industry that are also relevant for the broader spectrum of financial reporting (paragraph 132, Financial Accounting Standards Board, 1977):

> "Moreover, two major financial statement user groups - the Financial Accounting Policy Committee of the Financial Analysts Federation (the national professional association of security analysts) and the Robert Morris Associates (the national professional association of bank lending officers) - have endorsed elimination of optional accounting alternatives not only for oil and gas producing companies but for other industries as well. The Securities and Exchange Commission, in Securities Act Release No. 5877 (October 26, 1977), took a similar position, stating that the Board's oil and gas project "is expected to result in significant improvement in financial reporting through the establishment of uniform accounting standards so that investors are provided with a valid basis for comparing the financial statements of different

> companies." In the Board's judgment, when the same or similar facts and circumstances exist, as they do in the search for and development of oil and gas reserves, intercompany comparability requires a single method of accounting. Comparable reporting by companies competing for capital is, in the Board's judgment, in the public interest".

This type of formal assertions justifying the superior interest of a single method for financial reporting' users would be repeated in many occasions, as FASB tried to succeed where APB failed (vid. e.g. Financial Accounting Standards Board, 1985a, 1985c). The issue of business combinations accounting can be placed in such contexts, this time as a "second act" and with FASB as the protagonist, assuming therefore its examination a particular relevance for this thesis.

Previous to FASB's final changes, accomplished in 2001, the accounting for business combinations was discretionary in the USA (American Institute of Certified Public Accountants; Accounting Principles Board, 1970b; Ribeiro & Crowther, 2007c). The issue of the discretionary nature of accounting choice has been subject to examination in the literature, often together with the analysis of lobbying effects. For example, research based on the positive accounting theory examined the determinants that instigate the business community and accounting firms to try to influence through lobbying the FASB, focusing in specific financial reporting pronouncements (Deakin, 1989; Kelly, 1985; Watts & Zimmerman, 1978, 1990).

Being aware that managers have discretion in the application of GAAP, the set of accounting procedures within which managers have such discretion can be called "accepted set" (Watts & Zimmerman, 1990). According to Watts & Zimmerman (1990: 136), the managerial discretion over the accounting method choice is expected to vary across firms with the variation in the costs and benefits of restrictions (enforced by external auditors) which will produce the "best" or "accepted" accounting principles. The managerial discretion can be used to meet financial reporting objectives. Moreover, the achievement of

objectives benefits managers whenever compensation is tied to accounting figures.

Assuming the economic view that individuals try to maximise their own utility, it is consequently admissible that "management lobbies on accounting standards based on its own self-interest", being possible to examine predictors of lobbying behaviour (Watts & Zimmerman, 1978: 113). Watts & Zimmerman (1978), predict that corporate executives have greater incentives to lobby for accounting regulation that may result on increases in reported earnings, therefore increasing management wealth via, for example, increases in stock prices or stock options awards. As Watts & Zimmerman (1978: 118) note:

> "In small, (i.e., low political costs) unregulated firms, we would expect that managers do have incentives to select accounting standards which report higher earnings, if the expected gain in incentive compensation is greater than the forgone expected tax consequences.".

Indeed, higher earnings are desirable to managers linked to corporate reported performance, but related costs, such as taxes or political costs, also need to be weighed. Such costs may reduce stock prices and cash flows, and these negative impacts may outweigh the rewards that executives would have from an increase in reported earnings. Therefore, management may also lobby against accounting standards that result in an increase of reported earnings (Watts & Zimmerman, 1978: 118):

> "managers have greater incentives to choose accounting standards which report lower earnings (thereby increasing cash flows, firm value, and their welfare) due to tax, political, and regulatory considerations than to choose accounting standards which report higher earnings and, thereby, increase their incentive compensation. However, this prediction is conditional upon the firm being regulated or subject to political pressure.".

Subsequent accounting literature offers diverse motivations justifying why corporate executives may exercise accounting discretion among a set of

accounting procedures in order to obtain specific earnings goals (vid. e.g. Dechow & Skinner, 2000; Fields et al., 2001; Healy & Wahlen, 1999).

While examining the consequences of managers' behaviour to shareholders' wealth, Smith & Watts (1982) argued that the existence of bonus plans, tied to performance measured by accounting numbers, is justified as it allows to minimize agency costs. However, whether shareholders benefit from managerial discretion, and whether the benefits outweigh the costs is not such a clear matter (Fields et al., 2001). Additionally, Watts & Zimmerman (1978) found it reasonable to suggest that accounting choice may indeed affect shareholder's wealth in case manager's compensation contracts are tied to financial reporting performance.

The accounting choice has value implications, and this is evident in business combinations accounting.[78] Unsurprisingly, the literature focused on the pooling--purchase choice is large (Ashbaugh et al., 2004; Ribeiro & Crowther, 2007c). Several studies have found that both acquirer and target companies select a business accounting method based upon certain financial and non-financial characteristics (M. L. Davis, 1990). The percentage of insiders' ownership, accounting-based compensation plans, leveraged-based lending agreements, the

[78] Just like business combinations accounting, the valuation, in the sense of accounting measurement, is a controversial topic. What matters for the present research are the economic consequences of GAAP changes, and neither the valuation process itself nor its consequences. Therefore this topic is not treated in this research. For a theoretical views on accounting measurement see e.g. Ijiri (1967, 1975), Staubus (1985), or Hendriksen & van Breda (1992). In terms of discussion of assets measurement and valuation see e.g. American Accounting Association (1971), Penman (1970), or Sprouse (1971). For FASB's views on measurement, vid. Financial Accounting Standards Board (1976a), SFAC 2 (1980b), and SFAC 7 (2000); and also SFAS 141 (2001a) and SFAS 142 (2001e) for measurement in business combinations accounting. As for approaches regarding measuring value for shareholders vid. Crowther (2002a), or Rappaport (1986), and also Cooper et al. (2001) for an empirical study on the subject. For a discussion on measuring and earnings manipulation see e.g. Dechow et al. (1995, 1996), Dechow & Skinner (2000), Lev (2003), or Louis (2004). Finally, for valuation in finance see e.g. T. Copeland et al. (2000), Cornell (1993), or Palepu et al. (2000), and for valuation and value creation in M&A see e.g. Gaughan (2002), Weston et al. (2004), or Sudarsanam (2003).

company size, and some other specific characteristics determine which business combinations accounting method is selected by the management (Dunne, 1990).[79]

Early studies found that managerial discretion is used in business combinations accounting in order to meet financial reporting objectives, namely to maximise reported earnings. As Copeland & Wojdak (1969: 188) note:[80]

> "The manipulative quality of the purchase-pooling decision rule derives from the fact that acquired assets may be valued differently under the two methods. If a merger is accounted for as a purchase, acquired assets are recorded at the fair value of the consideration given by the acquiring company; however, under the pooling method they are valued at their preacquisition book values. (...) The method that minimizes asset values usually maximizes profits.".

Unsurprisingly, diverse evidence supporting earnings management can be found in literature either in business combinations accounting (e.g. Anderson & Louderback III, 1975; R. M. Copeland & Wojdak, 1969; M. L. Davis, 1990; Erickson & Wang, 1999; Gagnon, 1967; Louis, 2004; Nathan, 1988), or in purchased goodwill accounting (see e.g. Jordan & Clark, 2004; Sevin & Schroeder, 2005).

Indeed, the issue of the earnings management in business combinations is not a recent one. Earlier than AICPA's controversial publication of APB Opinion No. 16, Gagnon (1967) suggested that corporate managers may conveniently adopt one of the available business combinations accounting methods in order to best accomplish their particular goals, by maximising or smoothing the future reported income. Other authors, including Anderson & Louderback III (1975), and Nathan (1988), also present evidence suggesting earnings management in order to maximise reported income.

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[79] Vid. also Nathan & Dunne (1991) for some explanatory variables in purchase-pooling choice.

[80] Also referring to Gagnon's study (1967).

Additionally, Erickson & Wang (1999) and Louis (2004) found strong evidence suggesting that bidder companies overstate their reported earnings in the period previous to a M&A announcement, more precisely when involving a stock swap, in order to influence the exchange terms.

Evidence produced by more recent literature suggests that pooling of interests is in many cases the managers' preference. In fact, research found that pooling of interest was preferred by managers, since the amortisation of goodwill by purchase firms was negatively perceived by the markets, as investors feared the dilution caused by goodwill (e.g. Ayers et al., 2002). In a more pervasive approach, it has also been found that managers from companies with compensations based upon earnings favour pooling because it benefited earnings and return on investment (see e.g. Aboody et al., 2000; Ayers et al., 2000, 2002).[81]

Evidence also suggests that such preferences for pooling of interests can be powerful enough to engage firms with M&A agreements' provisions that would allow to cancel the deal in case pooling of interests could not be used (Aboody et al., 2000; Weber, 2004). Even more surprising is the fact that firms could be willing to pay in order to qualify for pooling of interests, as to be referred in this thesis.

2.6 Lobbying and pressures on FASB's new M&A accounting proposals

As referred before, discussions about business combinations proposals and practices easily generate disagreements because they can lead to dramatic changes in financial reporting. Many companies and professional boards strongly disagreed with the pooling of interests discontinuation because they were concerned with managing cash flows and earnings per share (EPS) figures, and

[81] Vid. also Gagnon's (1967) seminal paper, which was yet to consider the role of managerial compensation contracts.

therefore they were afraid of compulsory goodwill recognition and amortisation charges (Aboody et al., 2000). They argued it would not be possible to reach completion of many M&A deals without the pooling option, being such difficulties particularly visible in major deals involving large companies with massive amounts of goodwill and other intangible assets. Therefore, according to the pooling elimination opponents, the M&A activity and the economy could suffer from this potential constraint, as to be examined in this section (see e.g. Briner & Fulkerson, 2001; E. E. Smith, 1999).

Without surprise, many respondents to the early FASB's Invitation to Comment, *Methods of Accounting for Business Combinations: Recommendations of the G4+1 for Achieving Convergence* (Financial Accounting Standards Board, 1998), and to the first Exposure Draft, *Business Combinations and Intangible Assets*, released in September 1999 (Financial Accounting Standards Board, 1999a), argued that mergers should be accounted for differently than acquisitions (paragraph B36, SFAS 141). A few respondents supported that the pooling method should be applied to all mergers, while few others even recommended that it should be applied to all business combinations (paragraph B37, SFAS 141). These respondents mentioned different arguments to support pooling of interests, such as: more appropriate for "true mergers" or "mergers of equals"; or more reliable, more representationally faithful information, and more useful decision-making. However, not all respondents defended pooling continuation arguing, for example, that pooling elimination would enhance the comparability of financial statements.[82] Regardless of the pro and cons views, the fact is that from over 200 comment letters received by the FASB and from the about 45 parties that testified at FASB public hearings in early 2000, some two-thirds of the commentators opposed to pooling of interests elimination and a large number were also against FASB's proposals for goodwill treatment (Beresford, 2001: 74; Financial Accounting Standards Board, 2001a).

The Board refuted all the arguments of those who backed pooling, concluding that: i) M&A are similar in economic terms; ii) "true mergers" or "mergers of

[82] SFAS 141, *Basis for conclusions.*

equals" are nonexistent or so rare as to be virtually nonexistent; iii) information provided by pooling is not a useful decision and less relevant in terms of completeness, predictive value, feedback value and comparability than the information provided by purchase method; and finally, iv) pooling is inconsistent with the historical-cost accounting model.[83]

Pooling of interests has been for a long an accounting option that benefited some industries, such as information technology (IT), telecommunications, and Banking and financial services, including companies such as Cisco Systems, AT&T, AOL, or American Express (vid. e.g. Beresford, 2001). It represented also an opportunity for creative accounting. However, the pooling benefits had inherent some relevant costs. Companies often consumed "substantial resources" structuring transactions merely to meet the requirements of pooling (Linsmeier et al., 1998; Lys & Vincent, 1995), spending massive fees with legal and financial advisors. In what would become a flagship illustration, Lys & Vincent (1995) collected evidence supporting the finding that AT&T paid a minimum of $50 million, and perhaps as much as $500 million, to satisfy pooling of interests accounting. Furthermore, this type of obsession could even lead to put the formal aspects over the corporate strategy, which is a mistake at M&A level (e.g. Reed et al., 2007).

Another reason for alarm was EPS, which is reported under SFAS No. 128, *Earnings per Share* (Financial Accounting Standards Board, 1997a). EPS is perhaps the most important financial performance indicator in the USA, as suggested by the importance given by companies in financial reporting and by the attention given by the financial mass media (e.g. Chant, 1980; Larcker, 2003; Marquardt & Wiedman, 2005).[84] Companies concerned with EPS management tended to amortise goodwill over 40 years, therefore minimising the negative impact on earnings. Fig. 2.2 exhibits how companies dealt with the burden of goodwill amortisation until SFAS 142 replaced it by impairment tests. More than half of the companies surveyed chose large amortisation periods, two-

[83] SFAS 141, *Basis for conclusions.*

[84] Vid. Chapter 5 for more insights about EPS.

-thirds more than 20 years, and at least one third opted by the maximum dilution, the 40 years amortisation ceiling.

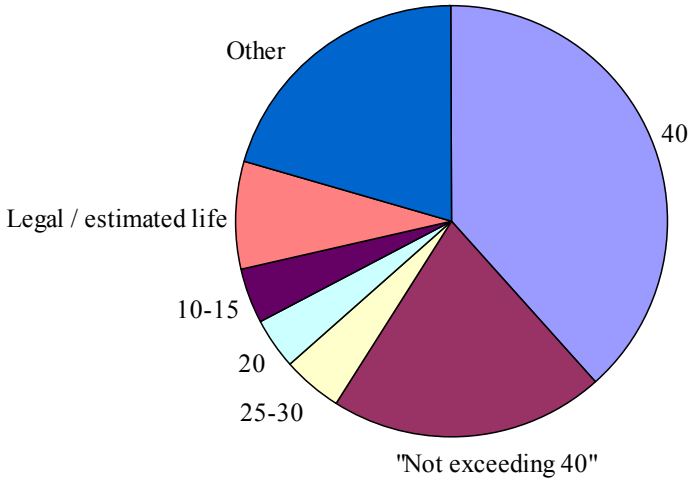

Fig. 2.2 Average goodwill amortisation period in the USA, 1985-2001
Data source: based on a dynamic sample of 600 firms used by AICPA in *Accounting Trends & Techniques*, several ed. (American Institute of Certified Public Accountants, 1968-2003).

Respondents' views on the FASB proposals about goodwill and other intangible assets often varied.[85] Some stated that no intangible assets should be amortised; others stated that a presumption about the length of the amortisation period was not necessary, nor was a maximum. Other argued that goodwill should be written off immediately because of the uncertainties associated with goodwill subsequent to its initial recognition. Various respondents favoured not amortising goodwill but testing it for impairment instead.

With the September 1999 FASB's ED, the board proposed to limit the maximum amortisation period for goodwill to 20 years, presenting goodwill amortisation expense on a net-of-tax basis in the income statement, and not amortising only certain intangible assets. However, like APB thirty years before, the FASB would also be forced to compromise, abandoning this early proposal.

[85] SFAS 142, *Background information and basis for conclusions.*

The reactions to FASB's ED were of disagreement concerning pooling of interests elimination. (e.g Beresford, 2001). By that time the *technological* M&A wave was peaking (e.g. Thomson Financial - Sikora, 2002). Many of these deals involved the acquisition of companies with a high percentage of intangible assets. Furthermore, a bubble was forming in the exchange markets, particularly in the National Association of Securities Dealers Automated Quotations (NASDAQ), the stock exchange were most technological companies are listed. This resulted in M&A deals involving high premium bids, and therefore sizeable amounts of potential purchased goodwill and other intangible assets were to be recognised if purchase method was to be used. Naturally, pooling of interests seemed critical in many cases, as if these deals were to be accounted using purchase method, they would probably become *suddenly uninteresting.*[86] Therefore 'Silicon Valley' was worried with the possible negative effects of pooling elimination on M&A activity and on its industry development (see e.g. King, 2000, *Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000, *Prepared Testimony of Mr. John Doerr Partner Kleiner, Perkins, Caufield & Byers*, 2000).

As FASB's proposals on business combinations were unconvincing for corporate executives, and as FASB's hearings were not being favourable for corporate lobbying, which continued to favour pooling of interests, the matter would then become a political one.

On 2 March 2000, Senator Phil Gramm, Chairman of the Senate Banking, Housing, and Urban Affairs Committee, held a hearing on "The Pooling Method of Accounting for Corporate Mergers", whose invitees would be grouped in two panels, an usual practice (Beresford, 2001). The first panel grouped prominent individuals from the business community, including American Express CEO

[86] Examples of M&A deals that were carefully structured in order to qualify for pooling of interests includes the acquisition of NCR by AT&T, the megamerger of Daimler-Benz and Chrysler, and many other M&A deals, such as SBC Communications and Ameritech, Citicorp and Travelers Group, or Exxon and Mobil (Duncan & Carleton, 1999; Lys & Vincent, 1995; Walter, 1999).

Harvey Golub; a leading venture capitalist, John Doerr; Dennis Powell, Vice President and Controller of Cisco Systems; an James Barksdale, a partner from The Barksdale Group, among others (Beresford, 2001; *Prepared Testimony of Mr. James Barksdale Partner The Barksdale Group*, 2000). The sympathy for this pressure group, unfavourable to pooling of interests elimination, was made clear in the opening statement of Senator Gramm, who referred to the first panel members as the "victims" (Beresford, 2001: 74). Moreover, the Senators declined to invite anyone supporting FASB's ED, being its defence solely in charge of Edmund Jenkins, FASB Chairman at the time, and the single individual invited for the second Congressional panel (Beresford, 2001). It is also noteworthy that, according to Beresford (2001), FASB unsuccessfully proposed other individuals to testimony in favour of the board's proposals on business combinations accounting.

In the first panel of the Senate Baking Committee Hearing on Pooling Accounting significant allegations were made about the dangers of FASB's proposals, particularly concerning pooling elimination. James Barksdale, from The Barksdale Group, "a leading investment and advisory group committed exclusively to growing companies in Internet services" stated that (*Prepared Testimony of Mr. James Barksdale Partner The Barksdale Group*, 2000):

> "I strongly disagree with the FASB's plan to eliminate the pooling-of-interests method of accounting. I believe that the elimination of pooling will discourage mergers and acquisitions, will have a negative impact on the U.S. economy, and will create financial statements that are, at best, irrelevant and, at worst, misleading.".

Not only was a clear opposition to pooling elimination expressed, but serious concerns were also expressed regarding negative impacts on the M&A activity and on the economy of the USA. Such allegations were detailed further (*Prepared Testimony of Mr. James Barksdale Partner The Barksdale Group*, 2000):

> "The elimination of the pooling method will discourage mergers of knowledge-based companies and will have a chilling effect on the flow of venture capital to promising new sectors. Poolings have proven to be an effective and efficient way for companies to integrate new intellectual property and innovations into their operations. At the same time, the prospect of such combinations has provided incentives to the start-up companies that have driven much of the technology sector's innovation. FASB's proposed elimination of pooling will discourage such combinations, will make it harder to attract institutional capital and - ultimately - will dampen desirable business activity. Still worse, these negative impacts will occur without any improvement in financial statement reporting.".

As possible negative consequences for innovation and R&D (research and development) for technological companies were highlighted - that the proposed changes in M&A accounting could only aggravate - James Barksdale also used its own experience as executive to argue that pooling was critical to undergo M&A deals in the information technology industry (*Prepared Testimony of Mr. James Barksdale Partner The Barksdale Group*, 2000):[87]

> "From my own experience, I can tell you that the AOL/Netscape merger would not have occurred if pooling had not been an option. The bulk of Netscape's value was intangible, and the amount of resulting goodwill that would have had to be amortized under the purchase method would have scuttled the deal. A report prepared recently by Merrill Lynch attempted to show the impact on AOL's earnings if it had been required to use the purchase method in the Netscape transaction. If AOL and Netscape had used the purchase method, its 1998 loss would have been roughly ten times greater.".

[87] James Barksdale served as Chief Operating Officer of Federal Express, Chief Executive Officer of AT&T Wireless and most recently, and President and Chief Executive Officer of Netscape. At the time of the Senate hearing he was serving on the board of directors of a wide range of technology companies, including America Online, Sun Microsystems, Respond.com and Liberate Technologies (*Prepared Testimony of Mr. James Barksdale Partner The Barksdale Group*, 2000).

It was therefore suggested that pooling elimination would force any company possibly interested in a M&A deal to use an unsuitable purchase method that could prove rather unfeasible for a deal completion.[88] It therefore seems clear that the proposed reduction of the purchased goodwill amortisation from 40 to 20 years was problematic - being its combination with pooling elimination regarded as possibly fatal for the M&A activity.

Understandably, criticism was made regarding a loss of quality of financial reporting whether proposed changes in M&A accounting would be effectively adopted (*Prepared Testimony of Mr. James Barksdale Partner The Barksdale Group*, 2000):

> "To the extent analysts expand this trend of ignoring amortization charges, it will make the GAAP financial statements increasingly irrelevant for those companies that are large enough to be followed by analysts on a regular basis.
> This is compelling evidence that financial reporting will not be improved by FASB's proposed change. In fact, financial statements will become less transparent. Analysts will ignore the drag on earnings caused by the use of purchase accounting in those transactions that are large enough to be closely followed by the market. For mid-sized or small companies, however, analysts and investors will not have sufficient information to enable them to look through intangible asset amortization. The same phenomenon is also likely to occur in the case of smaller transactions involving large companies.
> As a result, there will be different earnings benchmarks in the marketplace depending on the size of a transaction or the size of a company. Investors will not have the same type of cash earnings information or analysis for all companies. Similarly, requiring the use of purchase accounting will impair, not improve, comparability between the financial statements of companies that grow internally versus those that grow through business combinations.".

[88] Afterwards, the AOL/Time Warner deal would not qualify for pooling, as AOL Time Warner executives considered better to ignore the impact on financial statement reported earnings and, instead, focused on operating cash flow (Moehrle et al., 2001; *Prepared Testimony of Mr. James Barksdale Partner The Barksdale Group*, 2000).

The statement above comprises serious allegations, namely a foreseen increasing irrelevance of FASB's GAAP to firms followed by financial analysts; a reduction in the transparency of FASB's GAAP adoption, as many companies are not subject to financial analysis evaluation; in resume, comparability would be impaired, not improved as argued by FASB. Direct references to the FASB were also made, regarding both the merits of its initiative but also the difficulties carried by its proposals (*Prepared Testimony of Mr. James Barksdale Partner The Barksdale Group*, 2000):

> "FASB has identified an important issue - the need to improve accounting for intangibles. While there is a virtually uniform approach to valuing certain intangible assets such as cable systems and copyrights, consistent and well-tested valuation methods simply do not yet exist for many of the intangible assets that comprise today's companies. For example, FASB has proposed that favorable government relations is a separately identifiable intangible asset. We have no guidance, however, as to how that asset should be identified, valued or lifed. As it stands now, if you asked five different valuation experts to value that intangible asset and determine its useful life and you would get five different answers. The lack of uniformity on these important issues will result in inconsistencies in the allocation of the purchase price between identifiable intangible assets and the residual goodwill between different companies. For this additional reason, consistency in financial reporting will <u>not</u> be improved.".[89]

As the new M&A accounting involved also a revised treatment of purchased intangible assets, the implementation difficulties of the proposals were also used to highlight possible additional issues concerning a deterioration of financial reporting quality. It is also noteworthy that the example given to illustrate the difficulties regarding separately identifiable intangible assets valuation was "favourable government relations". Can this also be considered a subtle form of pressure?

[89] Original underline.

Arguments in favour of pooling of interests elimination were also refuted (*Prepared Testimony of Mr. James Barksdale Partner The Barksdale Group*, 2000):

> "One final point deserves mention. Some have argued that pooling should be eliminated because it allows one company to overpay for another company or encourages companies to enter into unsound business combinations. Even where both sides to a merger want the deal to be completed, the parties do not have entirely common interests. As a result, the value of the consideration exchanged is, by definition, determined at arm's length. In addition, corporate managers and directors have fiduciary responsibilities to their shareholders. To the extent those fiduciary duties are breached, the legal system, not the accounting system, should address those problems.".

Finally, James Barksdale appealed for compromise and for a suitable solution for all parties regarding the business combinations issue (*Prepared Testimony of Mr. James Barksdale Partner The Barksdale Group*, 2000):

> "I believe that we have an opportunity to develop a financial reporting model that provides accurate information to investors in the New Economy and that does not hinder the tremendous economic growth fueled by the technology industries. We should do so in a careful and thoughtful manner. There is no compelling rationale for the speedy elimination of pooling without thoughtful consideration of these larger issues. I look forward to a continued dialogue on these important issues and welcome your questions.".

Pressure and lobbying on M&A accounting discussions were indeed evident in the USA, from the basic standard-setting level to the upper political level. These statements from James Barksdale were not alone in the hearing. Dennis Powell, Vice President and Corporate Controller of Cisco Systems Inc., remembered in the Senate hearing that he was with "a Big Five accounting firm for 26 years serving many technology companies, as well as having responsibility as a National SEC Reviewer", as he prepared a background on business

combinations on his testimony (*Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000):[90]

> "The two methods of accounting - "Purchase" and "Pooling of Interests" - have been generally accepted in practice since 1945. In 1970, the Accounting Principles Board studied and discussed the pros and cons of the two accounting methods, and issued APB16 "Business Combinations", which concluded that they "find merit in the purchase and pooling of interests methods of accounting for business combinations and accepts neither method to the exclusion of the other." (APB16, paragraph 42).
> This viewpoint was reaffirmed in 1994 by a task force commissioned by the American Institute of Certified Public Accountants to study the usefulness of financial reporting. This report, entitled "Improving Business Reporting - A Customer Focus" concluded, after three years of study, that the existence of the two methods is not a significant impediment to users' analysis of financial statements and "A project to do away with either method would be very controversial, require a significant amount of FASB time and resources, and in the end is not likely to improve significantly the usefulness of financial statements."
> In rereading APB16, I found it interesting that arguments for and against the pooling versus purchase methods of accounting haven't changed over the past 30 years - we are still debating the same issues. However, while time has not changed the fundamental arguments for each method, time has changed the magnitude of the implications from the defects of the purchase method described in APB16, such as the difficulty in identifying and determining the fair value of intangible assets, including goodwill, and the

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[90] The simple presentation of the main facts of Cisco, as offered to the hearing, can almost be regarded as "pressuring", due to its obvious significance (*Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000):

> "Cisco is the worldwide leader in networking for the Internet with revenues currently approximating $17 billion per year. We are a multinational corporation with more than 26,000 employees in 200 offices and 55 countries. In the U.S., we have significant operations in California, Texas, Massachusetts and North Carolina.".

> accounting for goodwill after the business combination is completed.".

While recognising the perennial standstill of the discussions surrounding business combinations accounting, the Cisco Controller put an emphasis on the issues raised by the compulsory use of purchase method, regarded as problematic (*Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000):

> "These problems of the purchase method are still with us, and the implications today are much more severe than they were in 1970. In 1970, most of an acquisition price was allocated to tangible, hard assets. Today, for knowledge-based technology companies, most of the acquisition price is allocated to intangible assets - and very little allocated to hard assets. For example, since 1993, Cisco has acquired 50 companies amounting to $19 billion. Of these acquisitions, only $900 million, or 5%, is attributed to hard assets - $18 billion or 95% would be left to allocate to intangible assets or goodwill. So because over time the nature of acquisitions has changed in the New Economy, the limitations of the purchase method have become more problematic. And yet the new FASB proposal would force all acquisitions to be accounted for under the purchase method, without having solved its defects.".

As in the case of James Barksdale, the existing purchase method, as of APB Opinion 16 and 17, and the FASB's proposals on a revised purchase method (Financial Accounting Standards Board, 1999a) were regarded with major concerns, as pooling would no longer be an option (*Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000):

> "One of the defects of the purchase method is the accounting for goodwill once it is recorded as an asset on the balance sheet. The FASB proposal requires that goodwill be treated as a wasting asset, and be amortized ratably over 20 years. This model incorrectly assumes that goodwill declines in value over time, which artificially reduces net income and misrepresents economic reality. In reality, the value of goodwill is dependent upon the success of the merger, and is not a function of time.".

Examples of the negative impact of purchased goodwill amortisation in 20 years on successful M&A deals were also provided by means of simulation (*Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000):

> "For example, we studied four technology mergers that occurred in 1996 and 1997, which were reported as poolings. We then recast the poolings as if they were purchases, and restated the financial statements for periods after the acquisition to show the impact of goodwill amortization. Using the Computer Sciences merger with Continuum as an illustration (...), the impact of the goodwill amortization is to reduce actual net income by an average of 18% each year. This would suggest that goodwill has declined in value. However, over this same time period, goodwill actually increased by 42%. The results of all four companies in the study, (...) demonstrate the same impact. The purchase accounting model significantly <u>reduced</u> actual earnings by an average of 48% for the amortization of goodwill, which presumes that goodwill is declining in value. But in reality, the goodwill has significantly <u>increased</u> from the date of the merger by an average of 43%. In these examples, which are typical of successful mergers, the purchase model grossly misrepresents economic reality.",[91]

also stressing that the possible impact could be dramatic in the case of unsuccessful M&A deals:

> "On the other hand, not all mergers are successful. In one merger we studied, the goodwill declined from $7 billion to $1.6 billion in just three years after the acquisition.",

being the views on goodwill regarded as critical to justify such possible severe impacts:

> "Based on the above study, it is clear that in successful mergers, the presumption that goodwill is a wasting asset is not valid.

[91] Original underline.

> Goodwill increases in successful acquisitions and declines rapidly in unsuccessful acquisitions. One thing goodwill does not do is decline ratably over twenty years - the FASB model simply does not report true economic performance. Similar observations may be made of other intangibles, such as brand names, where the value for many brands have increased - not declined - over time.".

Further considerations were also made about the proposed accounting treatment for purchased intangible assets. While warning about the need of abundant guidance and standards about how to identify and value intangibles, Dennis Powell firmly stated that (*Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000):

> "At risk is a loss of credibility in financial reporting.".

Similarly to James Barksdale, FASB's proposals were considered to do not solve the missing comparability resulting from the existing of accounting choice in business combinations accounting. Nevertheless, a different type of examples were provided (*Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000):

> "The FASB has stated that elimination of pooling solves a comparability issue between purchase transactions and pooling transactions. But elimination of pooling simply trades one comparability issue with a set of new comparability problems.
> First, mandating the purchase method creates significant comparability issues between companies who grow from internal organic development and those who grow through acquisition. For example, a company that generates significant goodwill from its internal operations will report no goodwill value while the company that acquires goodwill through a merger will report the "value" of the goodwill at the time of the acquisition. So, while both companies may have the same value of goodwill, only the company who obtained the goodwill through a merger will report any amount on its balance sheet.
> Secondly, elimination of pooling prevents comparability within the same company - in comparing operations before the acquisition, which do not include the activities of the acquired company, to

> operations after the acquisition, which do include the activities of the acquired company. Eliminating pooling does not solve the comparability issue.”,

to finally argue that it would be more important to improve purchase method, than to eliminate pooling of interests:

> I believe the comparability issue would be more effectively addressed by correcting the inherent problems of the purchase method than by eliminating pooling accounting as an option.”.

To conclude, at a time when the “new economy” was a fashionable buzzword, the Cisco Controller made a warning on the economic impacts of FASB’s proposals, namely in terms of technological advances, capital formation, and jobs creation (*Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000):

> “In conclusion, the U.S. accounting rules for Business Combinations, which includes both the pooling and purchase methods, has for the past 50 years, generated and supported the strongest capital markets in the world. Before the FASB radically changes these accounting rules to a model that will certainly stifle technology development, impede capital formation and slow job creation in this country, the FASB should make sure the proposed new method is without question, the absolute, correct solution. In reality, the FASB’s proposed standard does not improve the accounting - it merely changes it. Worse yet, the proposed changes require companies to use a purchase model that does not work for companies in the New Economy, where most of the acquisition value cannot be attributed to hard assets, forcing companies to report an arbitrary, artificial net income number that is irrelevant and misleading.”.

As an epilogue, Cisco’s testimony ended with the following proposals (*Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000):

> “We believe the FASB should:

> (1) Retain the pooling of interests method of accounting.
> (2) Revise the purchase method to correct its deficiencies (…)
> (3) Engage a task force, which would include valuation experts, to develop adequate guidance on how to identify, value and account for intangible assets for New Economy companies".

This is, besides the suggestions referred to before, a specific accounting treatment for the "new economy", hi-tech, companies would also be very much welcomed by the business community.

Similar arguments and allegations were made in the remaining testimonies. For example, John Doerr, a partner with the venture capital firm Kleiner Perkins Caufield & Byers, serving on the on the board of directors of 15 companies, including Amazon.com, Sun Microsystems, Excite@Home, Healtheon/WebMD, Intuit, Martha Stewart Living Omnimedia, Freemarkets and Handspring, and "perhaps America's best-known venture capitalist" (Beresford, 2001: 75), argued that many M&A deals between many of these companies would not go through without pooling (*Prepared Testimony of Mr. John Doerr Partner Kleiner, Perkins, Caufield & Byers*, 2000):

> "Without pooling, many of these mergers could not have taken place due to the negative effects of goodwill amortization on earnings. The elimination of pooling will constrain companies from engaging in business combinations that make sense.".

While purchase method was also attacked by Doerr – similarly to other speakers (*Prepared Testimony of Mr. John Doerr Partner Kleiner, Perkins, Caufield & Byers*, 2000):

> "Technology companies concede that there are issues associated with the treatment of intangibles. Today's purchase accounting method, however, is not the answer. It does not solve the intangible asset issues, adequately represent corporate performance, or reflect the value of a successful business combination.",

any purposes of corporate lobbying or politically interferences in the business combinations accounting topic were dismissed:

> "I am not here to ask Congress to make accounting rules or to ask FASB to make economic policy. Only that we work together to undertake a thoughtful, fundamental review of the treatment of intangible assets that does not derail innovation and economic growth.",

despite direct references to undergoing interferences at the SEC, trough the Garten Commission, with possible good *compromising* results at FASB's work on M&A accounting:

> "As many of you know, Securities and Exchange Commission Chairman Arthur Levitt has asked Jeffrey Garten, Dean of the Yale School of Management, to assemble a team of leaders from the business community, academia and the accounting profession to consider how our current business reporting framework can more effectively capture the historic changes that are taking place in our economy. I am pleased to be a member of the Garten Commission and I am committed to working with the FASB to address the intangibles issue. Efforts such as this will deliver both transitional and permanent solutions that enable a well thought out, prepared evolution to improved accounting methods and systems.",

Accordingly, Doerr ended his testimony with a friendly and optimistic approach to the FASB (*Prepared Testimony of Mr. John Doerr Partner Kleiner, Perkins, Caufield & Byers*, 2000):[92]

> "Under Chairman Jenkins' leadership, the Board has raised some important issues that require attention. I believe there is a process in place that can address these complex issues - through the Garten Commission's review of the financial reporting model. In

[92] Doerr refered to Edmund Jenkins as "my friend" (*Prepared Testimony of Mr. John Doerr Partner Kleiner, Perkins, Caufield & Byers*, 2000).

> the near term, these efforts will allow a well thought out model to be developed that will improve the current system.
> We have a lot of work to do together and we in the technology community look forward to participating in that dialogue. Only then can we make sound decisions about the future of pooling and the appropriate treatment of intangible assets without threatening our economy's tremendous growth and the value of financial statements to investors.",

It is therefore arguable that the business community was confident that FASB would be forced to compromise, as both the SEC and the Congress were already deeply involved in the debates regarding the business combinations accounting issue. And the scale plates appeared to be increasingly unbalanced against an underweight FASB. This suggestion is also supported by Senator Gramm's opening statement on the "The Pooling Method of Accounting for Corporate Mergers" hearing. According to Beresford (2001: 74), its opening statement included this straightforward assertion:

> "As I look at accounting, no one could ever make a claim that accounting is reality. No one could ever make a claim that accounting is based on precise theory where we reduce a very complex reality down into a balance sheet that perfectly reflects it. The goal of accounting is basically to come up with simplifications that reflect reality and, to the extent that any simplifications ever reflect a complex reality, produce a situation in which you can get a good view of what is actually happening to a firm in the marketplace from the accounting standards that were set.".

Interestingly, despite almost entirely overruling the accounting role, and inherently dismissing the role of the accounting standard-setting body, a remark is made about the importance of preserving FASB's independence (Beresford, 2001: 75):

> "there is nobody more committed to the independent setting of accounting standards than I am. But I continually question the independence of the setting of these standards. I think the Securities and Exchange Commission has too much to do with the setting of these standards.".

Therefore, doubts were cast about the efficacy of FASB as a standard setter, perhaps due to SEC interferences – which is also often effectively a target of corporate lobbying, particularly whenever lobbying on the FASB does not produce results.

Also according to Beresford (2001: 74), the opening statement of Senator Gramm included not only his own opinion on accounting issues, as he has also suggested "not mandating goodwill amortisation but instead requiring a periodic review for impairment". This is a very significant *suggestion*, as later FASB would indeed replace the proposed 20 year ceiling amortisation period by impairment tests.

It is also important to refer that the pressures on the Congressional hearing were not made only from IT and financial industries.[93] The representative from the National Association of Manufacturers (NAM), Kimberly J. Pinter, has also disagreed with FASB's proposals (*Testimony of Kimberly J. Pinter, Director, Corporate Finance and Tax National Association of Manufacturers On behalf of the National Association of Manufacturers before the Committee on Banking, Housing, and Urban Affairs United States Senate On Business Combinations and Intangible Assets*, 2000):

> "The centerpiece of this project is the proposed disallowance of the pooling-of-interests method of accounting. The NAM finds this proposal objectionable based on a number of different factors.",

[93] e.g. *Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000; *Testimony of Alain J. Hanover, CEO, InCert Software Corporation, to the Senate Committee on Banking, Housing and Urban Development on behalf of The Massachusetts Software and Internet Council on Pooling of Interest Methods of Accounting*, 2000; and *Prepared Testimony of Mr. Harvey Golub Chairman and CEO American Express*, 2000; *Prepared Testimony of Mr. John Doerr Partner Kleiner, Perkins, Caufield & Byers*, 2000; for IT and financial industry, respectively.

referring similar objections to other speakers in the hearing, and also expressing serious concerns about possible negative consequences on M&A activity:

> "I have personally discussed the proposed elimination of pooling with many of our member companies, and I have been truly surprised by the number of times I've heard that this merger or that merger would not have happened had it not been for the applicability of pooling. And I've heard these comments across the board from all kinds of manufacturers. Even those that don't use pooling are very concerned about its possible unavailability for future transactions.",

that could consequently be reflected negatively in the manufacturing industry and in the economy overall:

> "Manufacturing is the largest contributor to economic growth, and the recent surge in M&A activity has coincided with a surge in productivity growth. By mentioning these facts, I don't mean to suggest that pooling should be retained because it somehow "encourages" business combinations; rather, it appears that the existence of only the purchase method to account for a diverse array of transactions would discourage such activity - and that result could well have a negative effect on the economy.".

While "supporting" FASB's independence, Kimberly Pinter and the NAM expressed also concerns about FASB's due diligence (*Testimony of Kimberly J. Pinter, Director, Corporate Finance and Tax National Association of Manufacturers On behalf of the National Association of Manufacturers before the Committee on Banking, Housing, and Urban Affairs United States Senate On Business Combinations and Intangible Assets*, 2000):

> "Finally, the NAM is concerned that the FASB is not hearing from all parties who may be critical of the project. Too often we have found that companies are very reluctant to too visibly criticize the merits of a FASB proposal due to concern that such activity might invite increased SEC scrutiny. Regardless of whether such concerns are founded, as they say, perception is reality, and it does have a chilling effect on full participation in

> the process. That said, the NAM appreciates the FASB's extensive efforts to thoroughly evaluate these issues with significant outside input and participation. We do fully support the FASB's independence and private-sector setting of accounting standards.”.

Representatives from the US Chamber of Commerce and from healthcare industry completed the hearing, and expressed concerns similar to the remaining speakers. For example, the US Chamber of Commerce Chief Economist recommended FASB to drop its proposals, warning about possible constraints in the economic growth (*Prepared Testimony of Mr. Martin Regalia Chief Economist U.S. Chamber of Commerce*, 2000):

> “The technology and financial services sectors have played a crucial role in our current position as a world leader. One reason for the success of these sectors has been their ability to grow. We do not believe that this opportunity for economic growth should be curtailed because of staffing constraints or the desire to adjust our standards to conform to our international competitors, especially when there is no consensus abroad. We should not change our standards without more compelling reasons.
> The U.S. Chamber urges FASB to reconsider its position and withdraw its exposure draft on this issue until Chairman Levitt's group has reported and all concerned parties have had the opportunity to digest its findings. The issues at stake are of great concern to our members and to all who want to encourage the continued economic growth we are currently enjoying.”.

Similarly, the Medtronic CFO urged FASB to change its proposals on M&A accounting, while expressing concerns about the possible generation of “uncertainty” and “volatility” on the markets, as a consequence of FASB’s confusing new rules (*Prepared Testimony of Mr. Robert Ryan Chief Financial Officer Medtronic*, 2000):

> “We urge the FASB to defer decisions on the accounting for business combinations until the whole issue of reporting financial performance is addressed. We think that the FASB's position relative to business combinations may change. We believe that the current proposal will create confusion in the marketplace, and

> uncertainty creates volatility. We have been told that investment analysts will train the market to ignore goodwill amortization. I believe we should be providing the market with meaningful and useful information and not something that will create confusion and be ignored.".

As mentioned before, FASB defence was solely in charge of its head, Edmund Jenkins (Beresford, 2001). To be more precise, he was accompanied by Kim Petrone, one of the business combinations accounting project managers, but without any speaking role (Hopkins et al., 2000). The FASB's chairman defended the ED proposals (Financial Accounting Standards Board, 1999a), which have been examined before in this chapter, emphasising the need to improve the financial reporting quality of M&A accounting. Nevertheless, it also revealed ample openness for a further discussion of the initial FASB proposals (Hopkins et al., 2000):

> "The Board has not yet made any final decisions with respect to the requirements contained in the proposal. The next significant stage in the Board's due process will be to begin its redeliberations of all of the issues contained in the proposal, including the Board's proposed decision to eliminate the pooling method. That process will include numerous public meetings held over the next several months. At those meetings, the Board will carefully consider the comment letters, public hearing testimony, what we learned from this hearing, and all other relevant information received from constituents - including information obtained from the members of our Task Force on Business Combinations and the members of our Financial Accounting Standards Advisory Council. No final decisions will be made until that process is completed.".

An indication that FASB could concede to the growing pressures was also given (Hopkins et al., 2000):

> "In closing, I want to be clear that the FASB understands and supports the oversight role of this Committee. We will carefully consider what we learn from this hearing. Let me assure you, Mr. Chairman and members of the Committee that our open due process and our independent and objective decision making will be

> carefully and fully carried out. To do otherwise would jeopardize the very foundation upon which the FASB was created, and for which it has proven invaluable to the US capital markets and to investors - the consumers of financial information.".

History tends to repeat itself, but lessons can be drawn, and certainly FASB did not want to face the same fate as AICPA's APB.

A second hearing entitled "Accounting for Business Combinations: Should Pooling Be Eliminated?" was carried on 4 May 2000 with Michael Oxley, Chairman of the Subcommittee on Finance and Hazardous Materials of the Committee on Commerce. There were again two panels, but this time the second panel included not only Edmund Jenkins, but again Dennis Powell, and, most notably, Peter Bible, Chief Accounting Officer of General Motors, who was in favour of eliminating pooling (Beresford, 2001).

Nevertheless, concerns with pooling elimination and possible economic impacts from FASB's proposals continued. For example, while highlighting the importance of FASB's independence, the hearing convenor stated that (Beresford, 2001: 77):

> "I would like to begin by reaffirming my belief that FASB, as an independent private sector entity, is best suited to set accounting standards. Few would want politicians without accounting expertise making highly technical accounting decisions.",

however, Michael Oxley would continue with the same tone given by Senator Gramm in the previous hearing:

> "From time to time, however, FASB considers an issue which has broad public policy implications, best brought to light through Congressional bearings. In such an instance Congress has a responsibility to foster open dialogue on the issue. Though I do not begin to have a solution to this debate I do urge those central to this debate to consider all options. Perhaps we need to further examine, the changing nature of assets which is driving our

> economy. We need to consider whether eliminating pooling accounting has a negative economic impact that could diminish the competitiveness of US businesses. Finally, we must evaluate whether the proposed changes will actually provide investors with more useful information about a company.".

Representative John Dingell, participating in the first panel of this second hearing, urged to the achievement of a compromise between the contending parties (Beresford, 2001: 78):

> "I urge the Board to proceed cautiously and carefully and, weighing the costs and the benefits, to act to achieve incremental good. I would also urge my friends in the hightech industry to work with FASB to develop a compromise that eliminates the current biases and distortions.",

while, conversely, Representative Bob Goodlatte continued to express serious concerns - that eliminating pooling accounting would strangle growth of the new economy - by stating:

> "I am hopeful that the FASB will step back, take a deep breath, and see the forest that is the New Economy, rather than the trees that are individual accounting standards.
> I look forward to working with you [Representative Oxley] and others who are concerned that our system of accounting standards should move along with the rest of the economy into the new century".

Furthermore, Representative Dooley strongly supported Congressional oversight of the business combinations project, as he directly targeted not only the FASB, but also the FAF (Beresford, 2001: 78):

> "In the end, Congressional oversight on contentious issues does not weaken the process, it strengthens it. What weakens the process and its product is when FASB stubbornly ignores the concerns of its constituents; and when the Financial Accounting Foundation, which oversees, funds, and appoints the members of FASB, characterizes Congressional interest and concern about a FASB

> project as "Explicit or implicit threats..." as they have in a May 1, open letter.".

Regardless all these pressures, Edmund Jenkins continued defending FASB views, particularly regarding pooling elimination (Beresford, 2001: 79):

> "The Proposed Standard's requirement to eliminate the pooling method will benefit investors, creditors, and other financial statement users by providing more information and more relevant information about all mergers and acquisitions. The Proposed Standard's provisions also will benefit those consumers by improving the comparability of financial reporting, thereby making it possible to more easily contrast companies that participate in business combinations.".

But FASB's views continued in peril. Along with the hi-tech industry, there was the financial sector, particularly the investment banks which were participating in the *merger mania*. As main financial advisors and financers of M&A deals, the banking industry was not certainly interested in losing business, simply because of a change in the accounting regulation, and therefore continued developing an intense political lobbying (Zeff, 2002).

The banking industry was not only fuelling the M&A wave by financing deals, as it was also undergoing a consolidation process itself. Banks also favoured pooling of interests, particularly in large dollar-value deals (Schroeder, 1999: 7). Indeed, according to Ayers et al. (2000: 8), "acquisitions in the financial services industry account for approximately one-third of all pooling acquisitions in number in value". Historically, banks could afford to pay higher premiums based on book value for M&A deals to be accounted by pooling of interests (Schroeder, 1999: 12). By being necessarily forced to use purchase method, the banking industry would not be able to continue to offer high premiums bids, and therefore M&A deals among banks would be reduced. It was therefore inevitable that the financial industry would strongly oppose to pooling discontinuation.

As a natural outcome, the respondents to the FASB's early Invitation to Comment from the banking industry strongly opposed to the pooling elimination proposal (Ayers et al., 2000; Financial Accounting Standards Board, 1999b). As much as 70% of the banks defended the continuation of both methods in order to respect the broad range of business combinations types (Financial Accounting Standards Board, 1999b).[94]

Like AICPA in 1970, FASB had also to compromise. On 14 February 2001, the FASB issued a Revised Exposure Draft, *Business Combinations and Intangible Assets - Accounting for Goodwill*, in which keeping pooling elimination was proposed (Financial Accounting Standards Board, 2001b). However, purchased goodwill and indefinite lived intangible assets were no longer to be amortised but to be tested annually for impairment. This was an amusing solution for the companies that lost the pooling option and had to recognise large amounts of purchased goodwill, as the goodwill amortisation charges were eliminated. It was also considered a more consistent decision, given the arbitrary nature of the initial proposal of a 20-year ceiling for goodwill amortisation.

Despite the compromise, the FASB has received 211 response letters on the 2001 Exposure Draft (Financial Accounting Standards Board, 2001a). Over 20% of the comment letters, 42 responses, were from the financial industry (Lewis et

[94] There is not comprehensive data available about pooling usage in hi-tech and financial industries. Nevertheless, as examined, anecdotal evidence supports the suggestion that pooling of interests was largely favoured in these industries, and therefore one can consider the likelihood of a considerable level of pooling usage (e.g. *Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000; *Prepared Testimony of Mr. John Doerr Partner Kleiner, Perkins, Caufield & Byers*, 2000). Anecdotal evidence also suggests that pooling was desirable in other industries, such as manufacturing, or healthcare (e.g. *Prepared Testimony of Mr. Robert Ryan Chief Financial Officer Medtronic*, 2000; *Testimony of Kimberly J. Pinter, Director, Corporate Finance and Tax National Association of Manufacturers On behalf of the National Association of Manufacturers before the Committee on Banking, Housing, and Urban Affairs United States Senate On Business Combinations and Intangible Assets*, 2000).

al., 2001). Therefore the discussion about the new business combinations accounting seemed not over yet.[95]

As the final issues were finally addressed, by May 2001, the board could finally vote the new standards, SFAS 141 and SFAS 142, by the end of June. Unlike APB Opinions 16 and 17, FASB's statements were adopted by the unanimous vote of the six members of the board. It was the result of 5 years of work, from 1996 through June 2001, and discussions, which included over than 60 public meetings and the discussion and analysis of more than 500 comment letters (Financial Accounting Standards Board, 2001d).

Finally, pooling of interests was eliminated in the USA, with other accounting--setter boards around the world following G4+1 recommendations and FASB's new GAAP.[96] In December 2007, FASB issued a revised version of SFAS 141 which replaced the original 2001 version. The new standard, SFAS 141(R), was issued together with IASB's IFRS 3, *Business Combinations*, which was also subject to revision (International Accounting Standards Board, 2008).[97] These two standards were the result of a joint project by the FASB and the IASB, "to improve financial reporting about business combinations and to promote the international convergence of accounting standards." (*Summary,* Financial Accounting Standards Board, 2007a). Unlike the troubled APB Opinions 16 and 17, the new set of FASB's business combinations and goodwill accounting standards seemed to be far more successful, despite several issues regarding its

[95] From this point, in this thesis "new business combinations accounting standards" refer to both SFAS 141 and SFAS 142, despite being SFAS 141 the only one entitled as "Business Combinations".

[96] The "Group of 4 plus 1" was an *avant-garde* accounting mastermind group intended to promote international GAAP convergence. Founded as an international group of standard setters, it was composed by the Australian Accounting Standards Board (AASB), the New Zealand Financial Reporting Standards Board (FRSB), the UK Accounting Standards Board (ASB), the Canadian Accounting Standards Board (AcSB), and the FASB (G4+1 (Organization) & International Accounting Standards Committee, 1998). The IASC has participated in G4+1 works as well, but with a different status, as it was only an observer.

[97] IFRS 3 (R) was issued in January 2008.

implementation. Some sensitive topics included the application of purchased goodwill impairment tests, or the intangible assets allocation. However, the further guidance provided in order to ease and clarify its real *application* cannot be compared with the AICPA's regulatory myriad in the 1970's. Perhaps the best proof of the appropriateness of the new standards is that the 2007 FASB's revision retained the fundamental requirements of SFAS 141, although it changed the name of the purchase method to *acquisition method*. SFAS 141 (R) has not only replaced SFAS 141, but has also amended SFAS 142 in several matters. It also provided further guidance in order to improve the application of the purchase method, and filled the gap on the accounting for bargain M&A, i.e., transactions that result in negative goodwill.[98]

Despite the apparent success of the implementation of FASB's new business combinations standards, particularly when compared with the previous set of standards issued by the AICPA, the question of whether such changes had any significant impacts on M&A activity remains unanswered. Indeed, formal implementation success does not necessarily mean success in limiting impacts on the economic activity, and therefore one can argue that the economic effects issue has enough merits to justify its study, as aimed by this thesis.[99]

2.7 Conclusions

The quest for accounting principles, which could integrate a comprehensive theoretical set, resulted in the establishment of a conceptual framework driven primarily by pragmatism, prompting discussions among the accounting community, while stimulating pressures from interest parties.

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[98] As SFAS 141 revision does not result on substantial effects regarding the purposes of the present research, and therefore the new standard is not to be subject to any further examination.

[99] Implementation success considered in terms of accounting choice elimination, as some issues, particularly the discretionary use of purchased goodwill impairment methodology, continues to raise doubts among researchers (e.g. Ramanna, 2008).

It appears that financial reporting is far too important simply to let it be managed by the accounting profession or by independent experts. This importance is not exclusive to managerial executives, who are concerned with their performance measurement. Politicians also want to see their constituents pleased, and are therefore concerned about the way the metrics of the economy are constructed – among others, economic performance can also be considered as a performance indicator for politicians itself.

Consequently, companies have clear incentives for lobbying, as long as the possible outcome outweighs the costs of doing so. The FASB's open-way conduction of its standard-setting policy also encourages lobbying. Therefore, as examined in this chapter, companies do lobby FASB whenever their interests are in peril, and as long as they can achieve net benefits from such actions. If they are unsuccessful with the FASB, they may try to influence the SEC, and even the Congress of the USA if necessary, in order to do as much as possible to persuade the FASB to concede to their interests.

The business combinations accounting issue illustrates perfectly this dichotomy, which often occurs between financial reporting standard-setters and preparers. For decades, almost since its inception, that pooling of interests was regarded with suspicion by the accounting profession, while loved by the business community, so much so, that its lobbying was successful to avoid pooling elimination in a first real attempt, in the 1970's. On a second attempt, however, pooling elimination could not be avoided, despite some fierce lobbying on the FASB, on the SEC, and on the Congress of the USA. Nevertheless, in order to achieve such a victory, not only has FASB been subject to every sort of pressures, but it also had to compromise inclusively, by abandoning its proposal of goodwill amortisation. Whether FASB's concession was enough to mitigate the negative effects of pooling elimination, as referred to by the business community, is the question to be examined in this thesis.

Chapter 3 M&A Activity and M&A Accounting

3.1 Introduction

This chapter presents an overview of the evolution of M&A activity and of the recent developments on business combinations accounting. It starts with a note on M&A terminology, followed by a brief presentation of some key definitions.

As mentioned earlier, it was not possible for researchers to explain why M&A tends to occur in waves. Nevertheless, the historical pattern of M&A is well documented, and therefore M&A waves are described in this chapter according to existing data and literature.

While the earlier evolution of the accounting for business combinations in the USA was examined in Chapter 2, in this chapter an analysis of the changes in the regulation which occurred in 2001 is made.

Finally, following an examination of some issues related to accounting neutrality, an early assessment of the possible economic consequences that may arise from the changes in M&A accounting is made, together with its possible impacts on financial reporting. This topic constitutes the core of the present research, and therefore it will continue to be examined throughout this thesis. Additionally, by continuing the discussion of why it had not been possible so far to construct a comprehensive conceptual theory for accounting and for M&A activity, this chapter also contributes to justifying the need for a greater

understanding of these phenomena. Such missing acquaintanceships also help to substantiate the need for the development of specific models for this thesis.

3.2 Terminology and definitions

Terminology is prolific and diverse in M&A, and therefore can be confusing in terms of precise meanings. In fact, M&A concepts are often used arbitrarily, even imprecisely, not only in professional contexts, but also in more formal contexts, such as in academic ones (vid. e.g. Weston et al., 1998). This is natural, as M&A jargon used by finance professionals, and in other informal contexts like the media, arbitrarily *merges* with more formal nomenclature used in legal, and in other normative contexts, such as tax, or accounting. Authors such as Weston et al. (1998), or Gaughan (1999; 2002), identify some discrepancies among M&A types of deals definitions. Since M&A terminology can be ambiguous, it is therefore advisable to define some key concepts more accurately, even if such definition relies on a criterion which is arbitrary itself. In order to minimise such subjectivity, different definitions used in M&A literature were crossed as follows.

M&A refer primarily to mergers and acquisitions. Merger is understood to be an operation that results in a single entity from the combination of two or more entities. The resulting single company is often one of the previous entities that *survives* at the expense of the disappearance of the remaining entities.[100] The surviving company can be regarded as an acquirer, since it will absorb all the remaining companies involved in the merger. In case the acquirer assumes the assets and liabilities of the merged companies the deal can be formally defined as a *statutory merger*, while if a target entity becomes a subsidiary of the acquirer it is called a *subsidiary merger* (Gaughan, 2002: 7). When the merger results in the formation of an entirely new single company, the deal can be referred to as a *consolidation* (Gaughan, 2002).[101]

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[100] Merger (statutory, subsidiary): Entity A + Entity B + … + n entities = Entity A.

[101] Consolidation: Entity A + Entity B + … + n entities = Entity Z $\neq$ *A, B, … , n entities.*

In an acquisition, one entity acquires the assets or the shares of another, losing the shareholders of the target entity the ownership. The resemblance of acquisitions to mergers is obvious, leading many to argue that, substantially, consolidations are the *true* form of mergers.[102]

Mergers usually result from a previous agreement between the companies involved. This is not necessarily the case for acquisitions, which can be classified as friendly or hostile. Friendly acquisitions are negotiated with the management of the target entity to meet certain legal and technical requirements, while hostile bids involve a direct offer to the target's shareholders to sell their shares at a specified price without the target's board of directors' approval (Weston et al., 2004). Hostile acquisitions are characterised as unsolicited bids that usually involve vigorous public rejection by the target's management (see e.g. Andrade et al., 2001; G. F. Davis & Stout, 1992).

M&A is also referred to as a takeover, although 'takeover' is a generic and vague term (see e.g. Gaughan, 2002; Ross et al., 1996). According to Gaughan (2002: 7), sometimes it refers only to hostile transactions, while at other times refer to both friendly and hostile deals. With a different understanding, Sudarsanam (2003: 3), argues that a takeover resembles an acquisition that also implies a "acquirer much larger than the acquired". Takeover is also frequently used interchangeably with *tender offer* (Weston et al., 1998: 4). Indeed, a tender offer is a method of making a takeover via a direct offer to target entity shareholders (Weston, 2001), and therefore the confusion of terms is natural.

Although M&A is essentially mergers and acquisitions that result in a change of control, it is no less true that M&A goes much further beyond this. Joint ventures and strategic alliances; restructuring activities such as divestitures, carve-outs, spin-offs, and tracking stocks; changes in ownership structure through share repurchases, leveraged buyouts, dual-class recapitalisations, and

[102] i.e. statutory mergers and subsidiary mergers can be regarded as mere acquisitions. Besides consolidations, *mergers of equals* are also considered to be genuine mergers.

leveraged recapitalisations are some examples of types of operations that can be broadly related to M&A.[103]

Grinblatt & Titman (1998: 669) point out that there are probably as many types of mergers as many different bidders and targets. Nevertheless, they can be epitomised as horizontal, vertical, or conglomerate. Horizontal mergers involve firms operating in similar businesses, such as competitor firms (e.g. Bank of America and FleetBoston Financial Corp.). Vertical mergers occur in different stages of production chain (e.g. AOL and Time Warner). Finally, conglomerate mergers involve firms from unrelated business activities (e.g. General Electric and Abbott Laboratories).

Finally, in the present research, the terms M&A and business combinations are used interchangeably, as synonyms. M&A is used in finance, while business combinations have been adopted by accounting standard-settings boards. Although M&A and business combinations may refer to several different types of operations, they both refer essentially to mergers and acquisitions. This is also the view adopted in this research.

3.3 M&A activity pattern and M&A waves

This section of the thesis examines the pattern of M&A activity and also the issue of the M&A waves occurrence, a peculiar M&A behaviour that continues to generate discussions among researchers. This examination is relevant to the present research as a fair understanding of the pattern of M&A occurrence is important to assess whether the changes in accounting regulation resulted in a significant impact on the level of M&A activity, as to be tested afterwards in this thesis. Therefore this section starts with an analysis of the historical pattern of the M&A waves, followed by the study of some of the determinants in M&A activity, which have been selected in the scope of this research' purposes.

[103] For definitions of different types of deals related to M&A vide chapter 6.

Accompanying the economic and entrepreneurial environments, the evolution of M&A activity tends to incur in cycles, just like the economic ones. Sudden rises and falls, such as M&A deal peaks quickly followed by crashes, are not rare in the M&A activity, resembling the stock exchange markets volatility. As in the market bubbles, sometimes the M&A activity is so intense that it leads to a so called 'merger wave'. This pattern of behaviour is not new. Although there are different sources and sets of M&A data, they all confirm the existence of several peaks of activity during more than a century of history in M&A. It is therefore accepted that M&A activity through time seems to come as in waves. The casual observation of historical M&A data indeed suggests this wave-like pattern, as shown below.

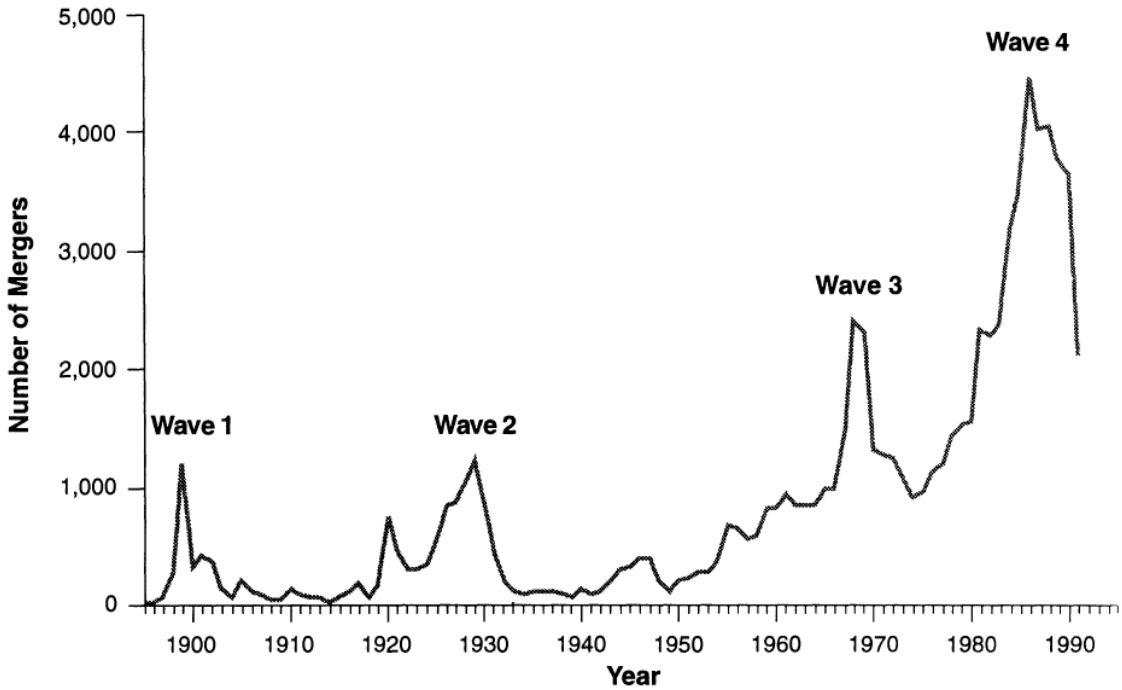

Fig. 3.1 Number of mergers completed in the USA, 1895-1990

Opere citato Stearns & Allan (1996: 700).

Data sources: Thorp (1941); R. L. Nelson (1959); U.S. Department of Commerce (1975); Mergers and Acquisitions (1981, 1991) (op. cit. Stearns & Allan, 1996: 700).

Most authors, such as Weston (2001), or Gaughan (2002), identified five M&A waves in the USA since the 19th century, being the first four movements represented in Fig. 3.1.[104] The M&A activity and waves are well documented. For example, the two first waves were studied extensively, either in conjunction or separately, by Thorp (1941), Stigler (1950), Markham (1955), R. L. Nelson (1959), Weston (1961), Eis (1969), or more recently by Lamoreaux (1985), and Leeth & Borg (2000); while the third wave has been studied by R. L. Nelson (1966), Reid (1968), Lintner (1971), Lynch (1971), Markham (1973), Steiner (1975), Scherer & Ross (1990), Hubbard & Palia (1999), among others. The most recent waves, the fourth and the fifth, solo or together with previous waves, were reviewed by Ravenscraft (1987), Golbe & White (1988, 1993), Blair & Schary (1993), or Mitchell & Mulherin (1996); and Mueller (1997), Black (2000a, 2000b), Andrade et al. (2001), Holmstrom & Kaplan (2001), Jovanovic & Rousseau (2002), or Harford (2005); respectively.

Although the wave-pattern was similar in each merger wave, including prominent peaks of activity, each of the waves was driven differently according to the entrepreneurial and economic environment existing at the time. The M&A movements are not casual, as specific changing factors and development forces instigate and give them particular characteristics. Indeed, all the waves were driven by different reasons, and had different characteristics. For instance, the type of deals and the most active industries have varied at different moments in time. A brief review of the history of M&A waves in the USA follows, based on Weston (2001: 7-8).

The first merger movement occurred at the turn of the century, from 1893 to 1904, and was associated with the completion of the transcontinental railway system. It created the first common market as it favoured the creation of

[104] The analysis of the fifth wave, occurred in the late 20th century, is made immediately after the examination of the previous waves, and is accompanied by a figure that allows its comparison with the fourth wave. The gigantic scale of the fifth wave, particularly when compared with the earlier waves, makes it inconvenient to exhibit all five waves in a single graph, as visual observation would be distorted, even if plotted in a logarithmic scale.

monopolies. Major horizontal mergers occurred in steel, oil, and basic manufacturing industries. According to Fligstein (1990), between 1895 and 1904, 78% of the mergers were horizontal, 10% horizontal and vertical, being the remainder solo vertical M&A.

The second merger wave occurred in the 1920s. According to Gaughan (2002), between 1916 and 1929. This merger wave was prompted by the development of the radio and the automobile, which made national advertising possible, allowed an increase in wider geographic sales, and it also helped to organise distribution. It was characterised by an increase in vertical mergers, which enabled manufacturers to control distribution channels in a more effective way. This led to the creation of large conglomerates, in an economy ruled by oligopolies. The second M&A wave ceased dramatically with the 1929 crash.

"Conglomerate mergers" is the best label for the third merger wave, which occurred in the late 1960s. As the post-war effort was reducing considerably, the conglomerate mergers represented, in part, a response to the slowdown in defence expenditures. As Weston (2001: 8) refers, "in every sample of conglomerates, at least one-half of the companies were aerospace or natural resource – depleting companies (oil, forest)". A new euphoria took place in the markets, as it was believed that a good manager, supported by the planning offered by state of the art literature, could manage anything successfully. It was also a period willing to diversification. For example, diversification was used by food industries in order to avoid their growth being too much linked down to population growth. This period, where diversification was fashionable, led many companies to overlook their core businesses, resulting in major decreases in corporate price-earnings ratios (PER) by the time the wave was vanished.[105]

[105] From the analysis of a sample of conglomerate mergers, Weston & Mansinghka (1971) found that deals were not made to enhance profits, but to increase earning per share (EPS) and shares prices, through a favourable PER. This finding would be later confirmed by Conn (1973). For more insights on the topic see also Mead (1969), Weston (2001) and Weston et al. (2004).

A fourth merger wave took place in the 1980s. It brought a certain dismantling of the diversification wave of the 1960s. In the 1980s it was the era of tender offers and hostile takeovers, which were enhanced by financial innovations and availability of high-risk financing. High leverage, junk bonds, arbitrage and speculation, and a higher involvement of investment banks, resulted in any firm to be possibly vulnerable to a takeover bid, as long as it was not performing up to its potential (Weston, 2001: 8).[106]

The M&A wave which occurred in the last decade of the past millennium was a remarkable one. From 1993 the number of transactions and the M&A value increased in a steady way. By the end of the century, an unprecedented pace, fed by a favourable economic environment and euphoria in the markets, resulted in colossal megamergers that broke all previous milestones in terms of deals size. The overall M&A activity figures, both in number of operations and dollar value, were also all-time high. The magnitude of the most recent wave is shown below in Fig. 3.2.

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[106] Risk arbitrage with M&A is common and consists in making short-term gains from the relationship between the takeover bid price and the relative prices of the bidder's and target's shares (Weston, 2001: 10):

> "For example, bidder B selling at $100 may offer $60 for target T, now selling at $40 (a 50 percent premium). After the offer is announced, the arbitrage firm (A) may short B and go long in T. The position of the hedge depends on price levels after the announcement. Suppose B goes to $90 and T to $55. If the arbitrage firm (A) shorts B and goes long on T, the outcome depends on a number of alternatives. If the tender succeeds at $60, the value of B may not change or may fall further, but the value of T will rise to $60, resulting in a profit of at least $5 per share of T for A. If the tender fails, T may fall in price but not much if other bids are made for T; the price of B may fall because it has "wasted" its search and bidding costs to acquire T. Thus, A may gain whether or not the bid succeeds. If the competition of other bidders causes B to raise its offer further, A will gain even more, because T will rise more and B will fall.".

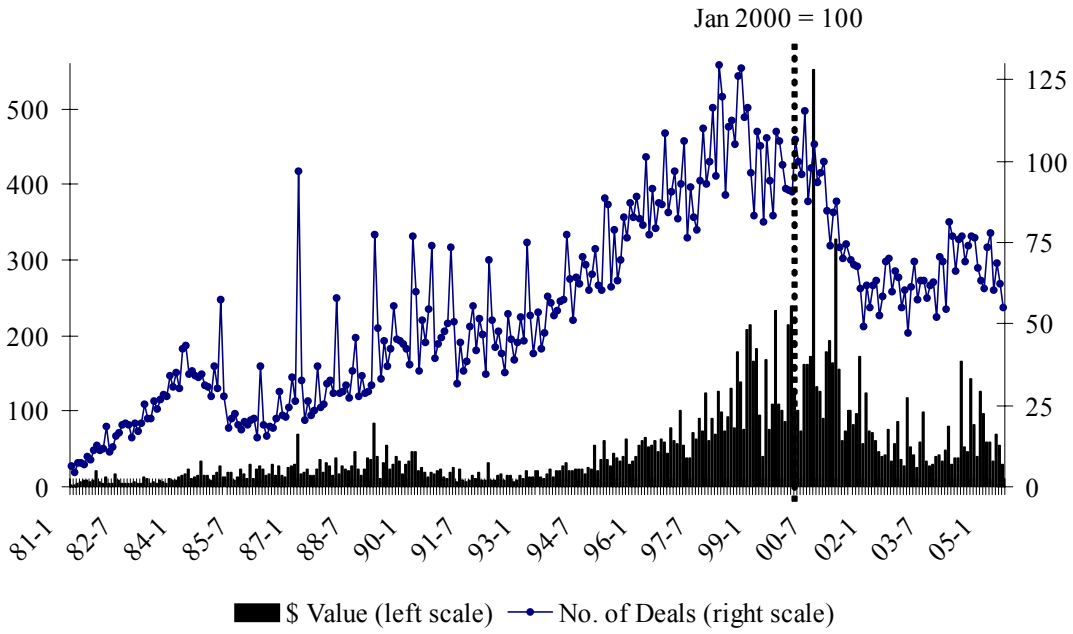

Fig. 3.2 Monthly M&A completed deals and dollar values, 1981-2005
Data source: SDC Platinum (Thomson Financial, 2006).[107]

The fifth wave was the age of strategic megamergers, with an important contribution from cross-border operations. It was also focused on some particular industries that benefited cumulatively from deregulation, globalisation, and technological revolution, which enhanced changes in industry organisation. As Weston (2001: 8) notes, more than half of the M&A activity in a given year "has been accounted for by five or six industries".

Like Black (2000a, 2000b), or Gaughan (2002), supports here the idea that it was not just one more wave based mainly in the activity in the USA, or simply a fifth merger wave. It was much more, because it involved the global economy and their participants. Therefore, it seems fair enough to label it as a truly international M&A wave.

M&A waves are not exclusively from the USA, the same way the international dimension was not exclusively from the fifth wave. For instance, in the UK,

[107] Note: SDC's data tracking coverage in the 1980's is somewhat poor.

Sudarsanam (1995) documented, between 1964 and 1992, three peaks on the M&A activity. Similarly, Hughes (1993) found that merger activity peaked in the period 1950-1990. In France, Derhy (1999) identified two M&A waves between 1959 and 1992: the first between 1966 and 1972 and the second amid 1986 and 1992.

The wave-pattern behaviour is not exclusively from M&A activity either. In fact, as Rau & Stouraitis (2006) note, there are corporate events of all types that tend to occur as waves. Just like mergers, initial public offerings, seasoned equity offerings, debt offerings, and stock repurchases, constitute some examples of wave-pattern (see e.g. Bayless & Chaplinsky, 1996; Choe et al., 1993; Lowry & Schwert, 2002; Lucas & McDonald, 1990; Maksimovic & Philips, 2001). However, literature still lacks a consensus on why waves occur, despite extensive empirical and theoretical research (Rau & Stouraitis, 2006).

Indeed, why M&A occurs in waves continues to be a phenomenon not fully understood (Rau & Stouraitis, 2006; Ribeiro & Crowther, 2007b). Despite all efforts made, previous researchers have been unable to reach a consensus about the comprehensive theoretical framework that underlies M&A activity wave pattern.[108] In fact, despite the existence of a wide empirical and theoretical

[108] The finding that M&A occurs in waves seems to be indisputable. Indeed, almost all authors admitted it, regardless referring to aggregate or individual-industry activity (e.g. Andrade et al., 2001; Andrade & Stafford, 2004; Auster & Sirower, 2002; Banerjee & Eckard, 1998, 2001; Barkoulas et al., 2001; Bittlingmayer, 1985; Black, 2000a, 2000b; Blair, 1989; Blair & Schary, 1993; Brealey & Myers, 1984, 1996; Brealey et al., 2006; Cabral, 2000, 2005; Calomiris & Karceski, 2000; Chowdhury, 1993; Clark et al., 1988; Derhy, 1999; Dong et al., 2006; Dymski, 2002; Eis, 1969; Fauli-Oller, 2000; Gaughan, 1996, 1999, 2002; Golbe & White, 1988, 1993; Gort, 1969; Harford, 2005; Holmstrom & Kaplan, 2001; Hubbard & Palia, 1999; Jovanovic & Rousseau, 2002; Lamoreaux, 1985; Leeth & Borg, 2000; Linn & Zhu, 1997; Lubatkin, 1983; Matsusaka, 1993; Matsushima, 2001; Mitchell & Mulherin, 1996; Mueller, 1989; R. L. Nelson, 1959; Rau & Stouraitis, 2006; Ravenscraft, 1987; Reid, 1968; Resende, 1999; Rhodes-Kropf et al., 2005; Rhodes-Kropf & Viswanathan, 2004; Scherer & Ross, 1990; Shleifer & Vishny, 1990, 1991; Sirower, 1997; Stearns & Allan, 1996; Steiner, 1975; Stigler, 1950; Sudarsanam, 1995, 2003; Town, 1992; Toxvaerd, 2008; van Wegberg, 1994; Weston, 2001; Weston et al., 1990; Weston et al., 1998; Weston et al., 2004). Only Shughart II & Tollison (1984) were unable to

research, the literature still lacks a convincing broad theory, presenting many partial explanations instead.[109]

The purpose to produce a comprehensive theory that could suitably explain the M&A pattern and its evolution configures a difficult task, due to the complex specifications and combinations that interact with M&A activity. Nevertheless, there are some indicators that, when isolated, contribute to the understanding of the M&A pattern of activity. According to Weston et al. (1998), Weston in 1953 and Markham in 1955 were the first to find, using regression analysis, that M&A activity in the USA was significantly statistically correlated to stock prices.[110] Afterwards, Gort (1969) formulated an "economic disturbance" theory to explain the relationship between merger activity and stock prices. His theory was based in the assumption that M&A activity was more likely to increase in periods of rising stock prices, due to expectational differences between shareholders and non-shareholders. However, this assumption requires admitting a significant market inefficiency between potential merger participants, during periods of high stock prices, which is unlikely to happen.

Other authors studied the phenomenon and tested several hypotheses, using different financial variables, in an attempt to explain the evolution of M&A activity.[111] As examples of variables used in models: Tobin Q-ratio (Jovanovic & Rousseau, 2002); or stock prices and bond yields (Melicher et al., 1983). On a broader approach, Becketti (1986) studied the connections between M&A activity and macroeconomics. Other authors focused on the possible relationship

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find the existence of merger waves, generating afterwards replies from Golbe & White (1988) and Town (1992).

[109] For example, for more than twenty years that Brealey et al. (e.g. 1984; 1996; 2006), quoting Segall (1968) about the inexistence of a comprehensive explanatory hypothesis for the M&A wave of the 1960's, continue to select the occurrence of M&A waves as one of the ten most relevant currently unsolved problems in finance.

[110] Nonetheless, Weston et al. (1990) acknowledges mixed evidence on whether changes in the number of mergers are caused by stock price changes.

[111] For example: R. L. Nelson (1959); Steiner (1975); Beckenstein (1979); Chung & Weston (1982); Melicher et al. (1983); Guerard (1985); Becketti (1986); Golbe & White (1988).

with the business cycle (e.g. R. L. Nelson, 1966; van Wegberg, 1994). With a different perspective, authors such as Stigler (1950) or Bittlingmayer (1985), have also studied the effects of deregulation, namely from changes in competition policy.

The majority of the studies using USA data concluded that M&A are in general both positively correlated with the stock market prices and the growth rate of Gross Domestic Product (GDP). Some of those studies also found correlation with stock prices in the long-term (samples up to one hundred years). Other studies using UK M&A data (samples up to thirty years) corroborated the results obtained in the USA.[112]

In terms of main categories of studies on M&A waves, it is possible to identify research on the timing (e.g. Barkoulas et al., 2001; Beckenstein, 1979; Golbe & White, 1988, 1993; Shughart II & Tollison, 1984; Steiner, 1975; Town, 1992), characteristics and motives (e.g. Markham, 1955; R. L. Nelson, 1959, 1966; Stigler, 1950; Weston, 1961), and determinants (Guerard, 1985; Melicher et al., 1983).[113]

The European Commission (2000) has also attempted to explain the evolution of M&A activity in the EU countries in the nineties. To achieve this, three factors were tested: economy size, the number of listed companies, and market capitalisation. However, the results obtained did not support any valid conclusions. Furthermore, the European Commission tested the variations in real long-term interest rates, price-earning ratios and share prices index. Yet again, the regression analyses did not provide results that could provide any significant relationships.

Like in previous studies focused on the long term, strong evidence was found to support explanations concerning the evolution of M&A activity over time. However, in shorter periods it was not possible to explain this type of evolution,

[112] Vid. Sudarsanam (1995, 2003) and Weston et al. (1990, 1998).

[113] These classifications are not meant to be rigid, as some studies have mixed characteristics.

either using capital market or macroeconomic factors. As the European Commission (2000) concluded, probably, short run variations in M&A activity for the EU result of "complex combinations" sector and country specific influences related.

Other strands of research included the study of motivations in M&A. The search for synergies, scale economies, or tax benefits, can also justify the occurrence of M&A.[114] As examples of theories contributing for the understanding of M&A phenomena, the market for corporate control (Jensen & Ruback, 1983), economies of scale (e.g. Jensen, 1993; Lambrecht, 2004), or management selfishness (e.g. Mueller, 1969, 1989), can be mentioned. Nevertheless, none of these studies contributed significantly for the construction of a comprehensive theory.

As referred by Ribeiro & Crowther (2007b), more recent research attempts to explain overall M&A activity using a neoclassical approach (See e.g. Andrade et al., 2001; Andrade & Stafford, 2004; Gort, 1969; Harford, 2005; Mitchell & Mulherin, 1996; Sudarsanam, 2003; Weston et al., 2004), arguing that merger waves result from shocks to an industry's environment, such as technological innovations or deregulation (Harford, 2005); while other authors believe that M&A waves occur as a result of temporary stock market misvaluation (e.g. Dong et al., 2006; Rhodes-Kropf et al., 2005; Rhodes-Kropf & Viswanathan,

[114] Synergy, a vague concept in M&A, comes from the basic notion that the global value of individual parts that come together exceeds the sum of the values of the parts when kept alone, i.e., $1 + 1 > 2$. This is not necessarily true, as demonstrated by Roll (1986). In his "hubris hypothesis", he argued that M&A, namely takeovers in the sense of acquisitions, neither create nor destroy value but simply redistribute wealth from hubris acquirers to target shareholders. The hubris hypothesis relies on the notion that an excessive auto-confidence from the bidder results in a loss for their shareholders due to high acquisition premiums offered. The fate of this type of takeover *success*, *Pirro*-like victories that result in later vulnerability of the bidder due to substantial loss of value, has been called the "winner curse". For a review on M&A success see e.g. Sirower (1997).

2004; Shleifer & Vishny, 2003).[115] This second approach, commonly labelled behavioural, is built on theoretical and empirical research which has observed a positive statistically significant correlation between aggregate share valuations and merger activity (Beckenstein, 1979; Becketti, 1986; Golbe & White, 1988; Guerard, 1985; Markham, 1955; Melicher et al., 1983; R. L. Nelson, 1959; Steiner, 1975; Weston, 1953).[116] Beyond the current mainstream approaches, there are also a number of diverse attempts using other different arguments, but with little impact regarding a contribution for the construction of a comprehensive M&A theory.[117]

In terms of the type of data utilised, several empirical studies have tested the wave pattern using aggregate industry data (e.g. Barkoulas et al., 2001; Becketti, 1986; Golbe & White, 1993; Melicher et al., 1983; Mueller, 1980; Town, 1992), while others studied this phenomenon at industry (e.g. Andrade et al., 2001; Eis, 1969; Gort, 1969; Harford, 2005; Mitchell & Mulherin, 1996), or at institutional levels (e.g. Auster & Sirower, 2002).

In conclusion, there are many theories but they can provide only partial explanations, based in specific time periods and factors. For instance, a theory that can explain satisfactorily the occurrence of fifth merger wave may not be suitable for the following M&A wave. Despite a comprehensive and widely accepted theory is missing, the many existing partial theories can be used to specifically fit a model that enables to test the research hypotheses, as aimed in this thesis.

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[115] Market misvaluation can be defined as the discrepancy between the market price and a present measure of the fundamental value (Dong et al., 2006).

[116] The wide existent literature is quasi unanimous about it.

[117] e.g. Holmstrom & Kaplan (2001) focus on the role of corporate governance in the occurrence of M&A waves.

3.4 New age for business combinations and goodwill accounting

As the discussions surrounding business combinations accounting were examined in depth in Chapter 2, in this section the formal FASB's process and steps that led to the new M&A accounting are summarised, highlighting the main changes to the previous GAAP set on the matter.

Following the ongoing criticism on pooling of interests method in the 1990's (e.g. M. L. Davis, 1991; Dieter, 1989; Rosenfeld & Rubin, 1985), in August 1996, the FASB added the project on accounting for business combinations to its agenda, with the objective of improving the transparency of accounting and financial reporting of business combinations. In 1997, FASB published a Special Report, *Issues Associated with the FASB Project on Business Combinations*, (Financial Accounting Standards Board, 1997b), asking for contributions on the scope, direction, and conduct of the business combinations project. In 1998, the G4+1 issued a Position Paper, *Recommendations for Achieving Convergence on the Methods of Accounting for Business Combinations* (G4+1 (Organization) & International Accounting Standards Committee, 1998). In this document, pooling of interests and purchase methods were both initially considered as well as a third one: the fresh-start method.[118] However, G4+1's final recommendation was that only the purchase method should be used to account for business combinations.

Despite the tightening of pooling usage by the accounting regulators, pooling subsisted over time.
Fig. **3.3**, constructed based on AICPA data (American Institute of Certified Public Accountants, 1968-2003) shows how the APB Opinion 16's 12 criteria set for pooling might have worked. The impact on pooling usage was gradual rather than immediate. The fast decrease in the years following the effectiveness of the

[118] The concept of "fresh-start" was not new. In fresh-start accounting, the assets and liabilities of the combining companies are recognised in the balance sheet of the combined entity at fair value (not at cost as in pooling). The combined entity is therefore treated as a brand new entity as in a consolidation deal.

Opinion was certainly due to the further regulation constraining pooling adoption issued by the accounting standard setters and the SEC. Altogether with other regulation (vid. e.g. Weber, 2004) and with developments in M&A activity, it led to a significantly reduction of the pooling of interests use: from around 50% in the late 1960's, to around 10% in the 1990's (American Institute of Certified Public Accountants, 1968-2003).

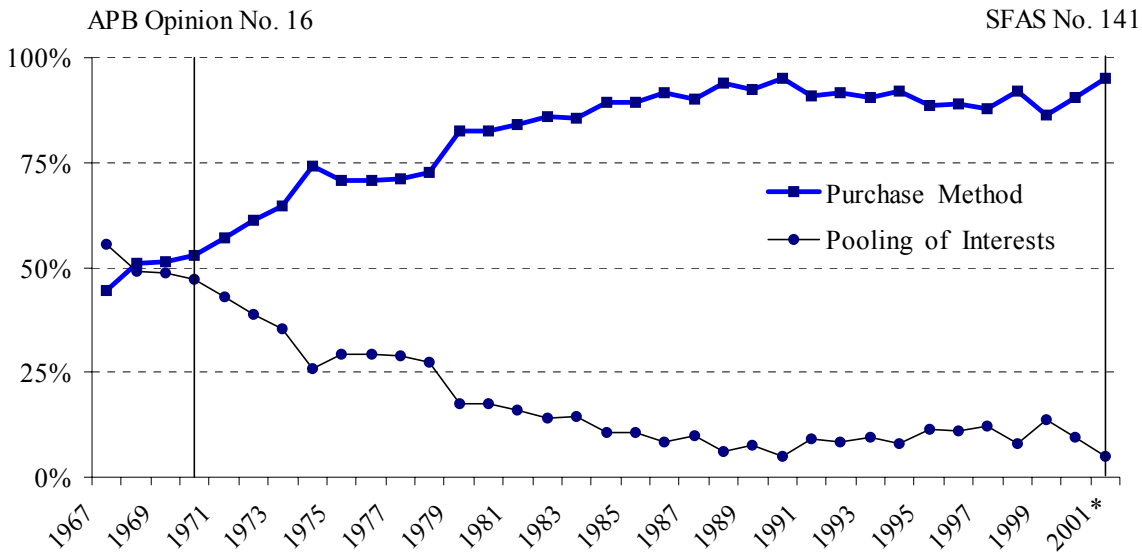

Fig. 3.3 Pooling versus purchase in the USA, 1967-2001

* From 1st July 2001 data referred only to purchase method, as pooling of interests ceased.

Data source: based on a dynamic sample of 600 firms used by AICPA in *Accounting Trends & Techniques*, several ed. (American Institute of Certified Public Accountants, 1968-2003).

A close observation and interpretation of Fig. 3.3 poses a possibly challenging question for this thesis' main research topic: the low percentage of pooling adoption in the last years seems to suggest that pooling is rather insignificant in the 1990s and therefore one could wonder whether its abolition could also be insignificant? Despite appealing, this question cannot be, however, sustained by sizeable data on pooling versus purchase usage, and therefore cannot be satisfactorily answered. A brief AICPA's sample description follows in order to understand why.

The 600 companies included in AICPA's survey are all registered with the SEC, being in recent years selected from Fortune 1000 components list. They are therefore mostly large and listed companies.[119] Indeed, when measured by revenue, in 2001, only 18 companies had less than $100 million in revenue, while 491 companies had at least $1 billion in revenue.[120] Large listed companies represent much less than 1% in the USA and consequently AICPA's data cannot be regarded by any means as statistically representative of the population.[121] Therefore, data shown in Fig. 3.3 needs to be observed carefully, and may perhaps be used mostly as a trend indicator, and not necessarily meaning that pooling usage was merely residual.

Furthermore, other data sources suggest of a more important role of pooling of interests among companies involved in M&A. In a survey with almost 200 responses, 65% of the respondents admitted they have been through a merger in the previous 10 years (Association for Financial Professionals, 2000). Among those involved in past mergers, 33% of respondents have used either pooling of interests exclusively, or both pooling and purchase methods (Association for Financial Professionals, 2000). Additionally, in Fig. 3.4, also in this section, it is also possible to observe another different data source, which reveals that, in the late 1990s, the total dollar value of M&A deals using pooling of interests was

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[119] Every AICPA's sampled company is traded on major USA stock exchanges, or on "over-the--counter" exchanges (American Institute of Certified Public Accountants, 1968-2003).

[120] In 2001, the number of companies in AICPA's sample with less than $100 million in revenue was 25. In 1998 and 1999, only 23 companies were under this threshold (American Institute of Certified Public Accountants, 1968-2003).

[121] There is no official definition of large company in the USA, but taking into consideration the thresholds referred regarding AICPA's sample selection, and according to the Statistics about Business Size from the U.S. Census Bureau (2008), from a total of 5,697,759 employing companies in 2002, 0.26%, or 15,103 companies, had more than $100 million in revenue, and only 1,947 companies had more than $1 billion in revenue, totalling 0.034%. These figures would be reduced whether nonemployer companies would be included - in this case the total number would include 23,343,821 firms. Additionally, and also according to the U.S. Census Bureau (2008), during the period 1988-2004, there were only 0.3% employing companies with 500 or more employees.

higher than in purchase method. In resume, it is clear that the importance of pooling has been reduced since the 1970s, but it is not clear whether it was absolutely insignificant in the 1990s. Despite the existence of some sparse data, it is not possible to draw any authoritative conclusions as the main databases in accounting and finance do not provide information about the accounting method used in M&A deals.

Finally, this thesis studies the impact of changes in business combinations accounting, which includes not only the impact of pooling elimination, but also the impact from the changes in the accounting treatment of purchased goodwill. Therefore, even if pooling of interests would be completely insignificant in the 1990s and in the early 2000's, this thesis' research questions would remain meaningful. The remainder of this chapter will help to understand why.

Indeed, although data shown before in Fig. 3.3 suggested that pooling was somewhat irrelevant when FASB proposed its prohibition, only around 10% of the number of deals in the 1990s, it may, nevertheless, provide a biased view.[122] According to King & Kelly (2000), measured by dollar value, 55% of business combinations were accounted for pooling of interests. This suggests that some managers involved in megamergers could prefer pooling of interests. However, there is no data or enough evidence that may strongly support the suggestion that the preference for pooling was greater in megamergers than in more modest M&A deals.[123]

Examples of megamergers using pooling included Daimler-Benz and Chrysler, SBC Communications and Ameritech, Exxon and Mobil, and Citicorp and Travelers Group (Duncan & Carleton, 1999). It may also be of interest to recall that, for example, in the US Senate Banking Committee hearing on pooling accounting, Jim Barksdale, former Chief Executive Officer (CEO) of Netscape, testified that the AOL / Netscape deal would not have taken place if annual goodwill amortisation had been recorded (*Prepared Testimony of Mr. James*

[122] Vid. also the comments made earlier about existing data on poolings vs. purchase use.

[123] Ibidem.

Barksdale Partner The Barksdale Group, 2000), being large sectors of the business community, particularly from technological areas, actively lobbying against pooling of interests elimination.

Despite the limitations referred to earlier concerning the examination of the pooling versus purchase use issue, Fig. 3.4 is shown below in order to provide a different view about the perceived importance of pooling before its elimination, at least when measured by dollar value, and not only by number of deals.[124]

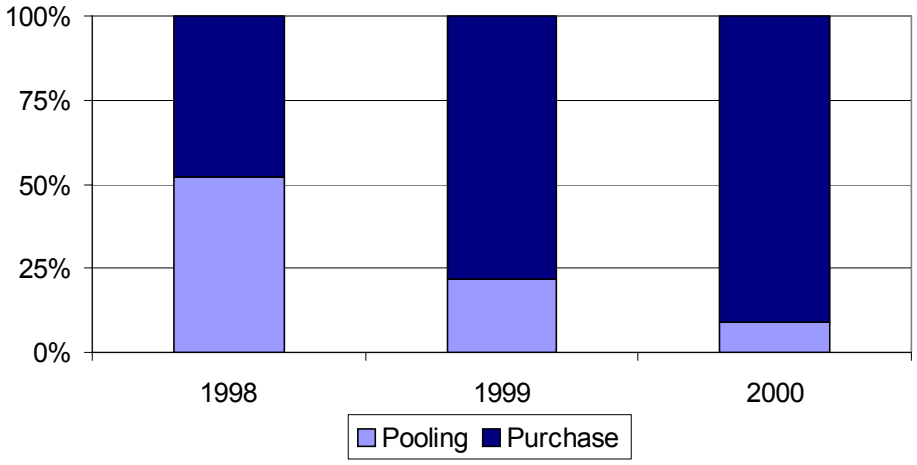

Fig. 3.4 Percentage of deals using pooling of interests versus purchase method, in dollar value, 1998-2000

Data source: First Call / Thomson Financial, 2006.

It is also relevant to be aware that there is not comprehensive data available about pooling usage by industries. Nevertheless, anecdotal evidence supports the suggestion that pooling of interests was largely favoured in some industries, such as IT, industrials, and financials, and therefore one can consider the likelihood of a considerable level of pooling usage, at least in some sectors.[125]

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[124] Data shown in Fig. 3.5 is merely a sample prepared by First Call / Thomson Financial, as SDC platinum database does not include information about the accounting method used in M&A deals.

[125] e.g. *Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000; *Prepared Testimony of Mr. James Barksdale Partner The Barksdale*

This is relevant for this thesis, as it reinforces the importance of pooling of interests role, increasing the interest of examining the possible impacts of the changes in business combinations accounting.

In resume, even if pooling of interests usage was reduced, there was *something* about it that made this method so valuable to the point where companies were ready to defend it as fiercely as shown before in Chapter 2. Whether it is merely a question of megamergers deals with massive goodwill figures it is also unclear, as the inconvenience of the recognition of purchased goodwill stands for every company forced to adopt purchase method.

The FASB kept its determination regarding pooling elimination. Following a long period of discussions and due process, including an invitation for comments (based on the G4+1 Position Paper), public hearings, an exposure draft and a later revised version, and numerous comment letters received, finally the FASB issued two standards in June 2001: SFAS No. 141, *Business Combinations*, and SFAS No. 142, *Goodwill and Other Intangible Assets*, superseding APB Opinions No. 16 and 17, respectively (Financial Accounting Standards Board, 2001a, 2001e).[126]

The provisions of SFAS 141 are effective for all business combinations initiated after 30 June 2001, and for all business combinations accounted for using the purchase method for which the date of acquisition is 1 July 2001, or later. It does not apply to: combinations of two or more not-for-profit organisations; acquisitions of a for-profit business entity by a not-for-profit organisation; and

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Group, 2000; *Prepared Testimony of Mr. John Doerr Partner Kleiner, Perkins, Caufield & Byers*, 2000; *Testimony of Kimberly J. Pinter, Director, Corporate Finance and Tax National Association of Manufacturers On behalf of the National Association of Manufacturers before the Committee on Banking, Housing, and Urban Affairs United States Senate On Business Combinations and Intangible Assets*, 2000.

[126] The discussions and due process that preceded the adoption of these standards is to be treated in the next section of this chapter.

combinations of two or more mutual enterprises. Some significant differences between SFAS 141 and APB 16 are as follows:[127]

> i) SFAS 141 eliminates the pooling of interests method of accounting for business combinations, therefore all business combinations are required to be accounted for by a single method - the purchase method;
>
> ii) SFAS 141 requires intangible assets to be recorded apart from goodwill if they meet one of the criteria established in the pronouncement (either the contractual-legal criterion or the separability criterion), in contrast to APB 16, which required separate recognition of any intangible asset that could be identified and named;
>
> iii) SFAS 141 significantly increases the disclosures about business combinations (e.g. disclosure about the primary reason for a business combination and the allocation of the purchase price to the assets acquired and liabilities assumed. Furthermore, when the amounts of goodwill or intangible assets acquired are significant in relation to the purchase price, it requires disclosure of other information about those assets, including the reporting of the amount of goodwill by segment if applicable SFAS No. 131, *Disclosures about Segments of an Enterprise and Related Information*, and the amount of the purchase price assigned to each major intangible asset class).

Like APB Opinion 17 and APB Opinion 16, SFAS 142 is intimately linked to SFAS 141 and therefore they share the same rationale. According to SFAS 142 *Summary*, the standard is to be applied to all goodwill and other intangible assets recognised in the entities' financial statements (Financial Accounting Standards Board, 2001e). Impairment losses for goodwill and indefinite-lived intangible are due to arise and to be reported. Companies are required to apply SFAS 142 in their fiscal year beginning after December 15, 2001 (early adoption is permitted for entities with fiscal years beginning after March 15, 2001,

[127] Adapted from SFAS 141 *Summary* (Financial Accounting Standards Board, 2001a).

provided that their first interim financial statements have not been issued). The major differences between SFAS 142 and APB Opinion 17 are outlined below:[128]

> i) Under APB Opinion 17, the portion of the premium related to expected synergies (goodwill) was not accounted for appropriately. SFAS 142 adopts an aggregate view of goodwill and bases the accounting for goodwill on the reporting units of the combined entity into which an acquired entity is integrated;
>
> ii) APB Opinion 17 assumed that goodwill and intangible assets were wasting assets and therefore considered appropriate to amortise them over their useful lives limited to an arbitrary ceiling of 40 years. By opposition, with SFAS 142, goodwill and indefinite useful lived intangible assets are no longer to be amortised but to be tested at least annually for impairment (or more frequently if necessary). Intangible assets with finite lives will continue to be amortised over their useful lives, but SFAS 142 does not impose any limit;
>
> iii) Lack of guidance in the previous standards related to the determination and measurement of goodwill impairments resulted in diversity in practice. SFAS 142 provides a model and methodology to test and measure goodwill impairment: the two--step model.[129] It also provides specific guidance on testing intangible assets not to be amortised for impairment;
>
> iv) APB Opinion 17 required intangible assets to be amortised using the straight-line method (unless demonstration that other method could be more appropriate). SFAS 142 changes this presumption: intangible assets are to be amortised using a method according the economic benefits status of the intangible asset (straight-line method to be applied only if not possible to determine those benefits);
>
> v) Finally, SFAS 142 requires additional disclosure of information about goodwill and other intangible assets in the years subsequent to completion of the M&A (changes in the carrying amount of

[128] Adapted from SFAS 142 *Summary* (Financial Accounting Standards Board, 2001e).

[129] Step 1: test for potential impairment; Step 2: measurement of the impairment (if necessary). Vid. Chapter 6 for more details.

> goodwill from period to period; the carrying amount of intangible assets by major intangible asset class for those assets subject to amortisation and for those not subject to amortisation; and the estimated intangible asset amortisation expense for the following five years).

To summarise, according to the new FASB's GAAP, the purchase method is the single accounting method accepted for business combinations, and purchased goodwill is not to be amortised, but to be subject to impairment tests. These statements have been the focus of much controversy and are arguably some of the most significant statements ever issued by the FASB as they resulted in a deep change in the way companies accounted for business combinations, therefore deserving further examination, and also deserving to be subject to testing for possible impacts on M&A activity.

3.5 Neutrality versus economic effects in M&A accounting

As discussed earlier in this thesis, financial reporting is important for the business community and for stakeholders, but in order for it to be useful, it needs to be guided by specific objectives and should also have some critical qualitative characteristics, like the ones mentioned at FASB conceptual framework. Indeed the FASB, in SFAC 1 (paragraph 34, Financial Accounting Standards Board, 1978), states that:

> "Financial reporting should provide information that is useful to present and potential investors and creditors and other users in making rational investment, credit, and similar decisions.".

The main purpose of accounting information is to provide useful information to decision makers. Through SFAC 2, *Qualitative Characteristics of Accounting Information*, published in 1980b, FASB recognises the usefulness for decision making as the most important characteristic of information. Accordingly, usefulness is placed at the top of the hierarchy of accounting qualities, being considered at the "user-specific quality" level. Below, at the "primary decision-

-specific qualities" level, are placed two other critical qualities: relevance and reliability. Directly concerned with reliability is the characteristic of neutrality. According to SFAC 2 (paragraph 98, Financial Accounting Standards Board, 1980b):

> "Neutrality means that either in formulating or implementing standards, the primary concern should be the relevance and reliability of the information that results, not the effect that the new rule may have on a particular interest. A neutral choice between accounting alternatives is free from bias towards a predetermined result. The objectives of financial reporting serve many different information users who have diverse interests, and no one predetermined result is likely to suit all interests.".

Accounting neutrality is not consensually accepted and some reject it because it seems utopian (vid. e.g. Hendriksen & van Breda, 1992). In fact, the accounting has purposes and the accounting information cannot avoid affecting behaviour (paragraph 102, SFAC 2):

> "Information that reports on human activity itself influences that activity, so that an accountant is reporting not on some static phenomenon but on a dynamic situation that changes because of what is reported about it."

Nevertheless, FASB's mission statement points out that (SFAC 2, paragraph 100):

> "To be neutral, accounting information must report economic activity as faithfully as possible, without coloring the image it communicates for the purpose of influencing behavior in *some particular direction*".[130] [131]

[130] Vid. also FASB *Rules of Procedure*, p. 3.

[131] Original italic.

Therefore, what matters is to have information as neutral as possible, even knowing that utterly neutral information may only be possible from a pure theoretical point of view.

If the accounting information could be effectively neutral then the pronouncements would not be supposed to produce economic effects. FASB made a very interesting assertion at SFAC 2 (paragraph 106):

> "while rejecting the view that financial accounting standards should be slanted for political reasons or to favor one economic interest or another, the Board recognizes that a standard-setting authority must be alert to the economic impact of the standards that it promulgates.".

This means that the board recognises that it must be immune, as much as possible, to governmental pressures and entrepreneurial lobbies. Indeed, FASB stresses the importance of its own neutrality for the credibility of any standards it may produce (SFAC 2, paragraph 104):

> "But more importantly, it is not desirable for the Board to tack with every change in the political wind, for politically motivated standards would quickly lose their credibility, and even standards that were defensible if judged against the criteria discussed in this Statement would come under suspicion because they would be tainted with guilt by association.".

As political and corporate influences are to taint, at the very least, the credibility of financial standards, the FASB's faces, nevertheless, an everlasting need to fight for its independence – threatened by the need of balancing its positions, often being forced to compromise due to corporate and political pressures.

Indeed, it seems generally accepted, particularly from the FASB members viewpoint, that the board processes have to continue to be objective and independent (see e.g. Beresford, 1989, 2001; V. Brown, 1990; P. B. W. Miller,

1990; Zeff, 2002). However, although the FASB is represented as having no moral or legal authority to establish public policy and makes no claims to such authority, it needs to be very aware of the social and economic impact caused by its accounting rules (see e.g. Burchell et al., 1980; Hines, 1988; Zeff, 1978).[132]

One could argue that accounting policy should be neutral and should not produce any economic effects. However, accounting standards do have social and economic consequences (Burchell et al., 1980; Hines, 1988; Zeff, 1978), as FASB explicitly admits it in SFAC 2. The minimisation of these consequences is therefore a main concern.

It is never easy to predict and isolate those potential effects from standard--setting policy from other economic events, especially in the case of new standards, where the estimation is less reliable. In case an unexpected and undesirable effect on business behaviour is generated, it may then be necessary to review the accounting standards (vid. e.g. Hendriksen & van Breda, 1992).

The business combinations topic is very sensitive concerning the neutrality of accounting information. The M&A market is very dynamic and important in the USA, the deals can involve massive dollar values, and the activity is considered critical for economic restructuring, development, and growth (vid. e.g. *Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000; *Prepared Testimony of Mr. John Doerr Partner Kleiner, Perkins, Caufield & Byers*, 2000). Without surprise, FASB recognised that the standards it would produce should not seek to encourage or discourage business combinations (paragraph B75, SFAS 141):

> "Instead, those standards should produce information about those combinations that is fair and evenhanded to those having opposing economic interests.".

[132] Vid. also other literature about social and economic consequences of accounting policy (e.g. American Accounting Association, 1978; Benston, 1978; Bromwich, 1985; Horngren, 1973; Kelly-Newton, 1980; Moonitz, 1974; Rappaport, 1977; van Riper, 1994; Wyatt, 1977; Zeff, 1993).

The board also exploited the neutrality attribute to support the pooling elimination. As referred earlier, pooling of interests' supporters argued that the M&A activity could be harmed if the FASB would not change its proposals. According to the FASB, such defence could mean that pooling encouraged certain types of business combinations, therefore suggesting that the existing business combinations accounting was not neutral (paragraph B75, SFAS 141):

> "In the final analysis, the Board concluded that the accounting standards for business combinations should not seek to encourage or discourage business combinations.(...) The Board also concluded that those who argue for the pooling method on the basis that they believe that it fosters more combinations are not seeking to have neutral, evenhanded information disseminated.".

It can be said that FASB was sharp enough to use the main argument from pooling defenders as a justification for pooling elimination. Indeed, it is suggested that the previous business combinations accounting standards continued to produce economic effects, meaning that the pronouncements issued by the standard setters over time were not enough to significantly mitigate the distortions caused by pooling adoption. Moreover, it can also be argued that the successive restrictions imposed over time to limit the possibility of pooling adoption increased the level of distortion that companies were willing to accept in order to qualify M&A deals as unity of interests. As to be discussed later in this thesis, anecdotal evidence supports the idea that such distortion could involve the *artificial* reshaping of M&A deals, often involving large amounts of *reshaping* costs (vid. e.g. the case of AT&T's acquisition of NCR).

When looking for the best accounting treatment for goodwill, where several different acceptable methods have been initially considered, the FASB (paragraph B98, SFAS 142, Financial Accounting Standards Board, 2001e):

> "did not consider it possible to develop a method of accounting for acquired goodwill that all would agree established a level playing field in all circumstances. Accordingly, the Board focused on which

> method better reflects the economic impact of goodwill on an entity.".

Moreover, (paragraph B99, SFAS 142):

> "the Board reaffirmed its decision that non-amortization of goodwill combined with an adequate impairment test will provide financial information that more faithfully reflects the economic impact of acquired goodwill on the value of an entity than does amortization of goodwill.".

The FASB's views on neutrality, and on economic consequences from accounting policy changes, would be reflected in the process of revision of the business combinations accounting which started in the mid-1990's. However, FASB would face strong opposition, being the board's independence threatened, as examined in chapter 2. Like in the late 1970's, many finance professionals and managers argued that if pooling was to be discontinued, the M&A activity would suffer, resulting in a negative impact on the USA economy (inter alia King, 2000; King & Kelly, 2000; *Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000; E. E. Smith, 1999). It was also referred that the lobbying from the business community was so intense to the point that politics became directly involved in the FASB's business combinations project, endorsing hearings in the US Congress and with involvement from the US Senate (see e.g. Beresford, 2001; Zeff, 2002). Nevertheless, despite the political and economic pressures to keep both methods, much of the literature in accounting kept defending the abolition of pooling of interests (see e.g. American Accounting Association. Financial Accounting Standards Committee of Accounting Procedure, 1999).

As much inconvenient a change in GAAP can be, the fact is that evolution is inevitable in accounting (vid. e.g. Zeff, 2003a, 2003b). If change is inevitable, then economic consequences from changes in accounting policy may be as well (vid. e.g. Hendriksen & van Breda, 1992). As addressed in this research, whether the economic consequences from changes in accounting policy may have resulted inconvenient is the crux question. In the next section, an early analysis

of the possible impacts on M&A activity following FASB's changes on business combinations accounting is provided.

3.6 Possible impacts on M&A activity and M&A accounting

The discussion about the need for a change in business combinations accounting seems to have been fruitful. Following the effectiveness of the new standards, the dissidents of pooling could finally end their criticism. More importantly, the worst fears of the defenders of pooling appear not to be confirmed. Looking at Fig. 3.5 below, it is possible to observe that the M&A market stabilised after July 2001, following the early 2000's exchange markets crash and the end of the fifth M&A wave. There is no clear indication of a last minute rush for pooling qualification, and the M&A market remained flat in 2002, in line with the subsisting business environment.

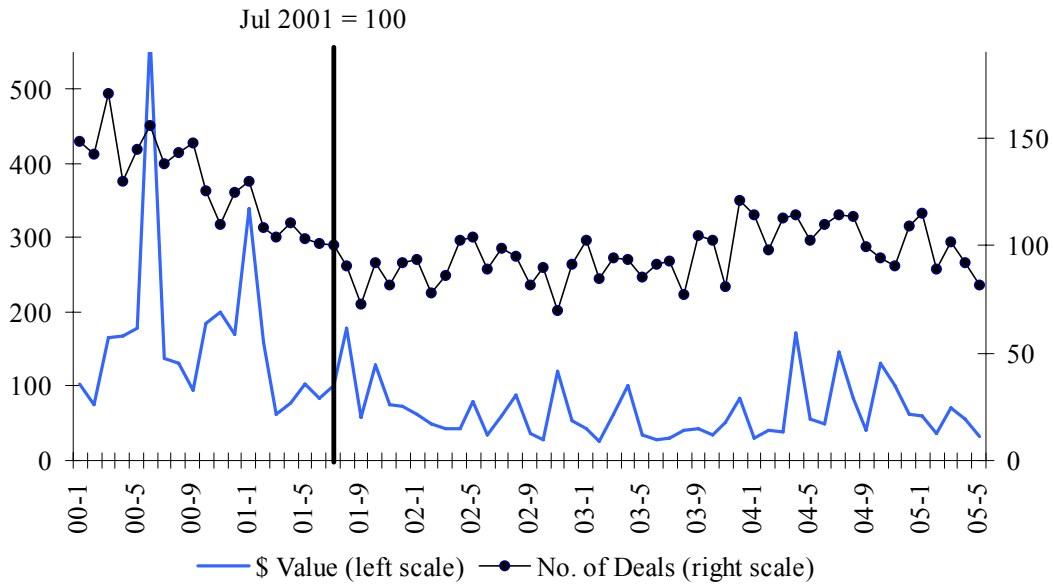

Fig. 3.5 Monthly M&A completed deals in number of deals and dollar values in the USA, from 01-2000 to 05-2005

Data source: SDC Platinum (Thomson Financial, 2006).

In terms of the number of companies accounting for business combinations, the figures appear to have continued stable, despite the pooling elimination and the changes in purchase method. For example, according to Accounting Trends & Techniques (American Institute of Certified Public Accountants, 1968-2003), in 2002, 314 of the 600 surveyed companies used the *new* purchase method to account for business combinations, versus 309 purchases and 16 pooling of interests in 2001.

Additionally, apparently there were not significant indications of relevant economic effects produced by the new standards. While the neutrality of the new standards seems not to be an issue, not everything remained necessarily unchanged. Otherwise, the FASB changes would not be more than merely cosmetic and would not produce any effects. That would be abnormal. As Hendriksen & van Breda (1992: 242-243) note:

> "All decisions regarding accounting policy should have economic consequences. If there were no consequences, there would be no reason for policy decision. The desired consequences include an improvement in the information available to investors and other users with the result of permitting sounder economic decisions or a reduction in the information-gathering costs for users. Through the securities markets, better decisions should result in an allocation of resources closer to the optimum and an opportunity for an improvement in portfolio selections. If decisions are not altered and if information costs to users are not reduced, this is evidence that the policy decision was not desirable".

Therefore, the appropriateness of the changes in business combinations and goodwill accounting could be simply judged by the absence of undesirable effects. Furthermore, one could argue that the changes should be *useful*, resulting in *positive* effects for the users, particularly investors. In order to examine whether FASB's changes produced any significant effects on M&A activity, a set of hypothesis are formulated in chapter 4, being subject to testing in chapter 7, using different sets of samples as shown in chapter 6.

Besides any possible effects of the new GAAP on the M&A activity, which are to be tested later in this thesis, the new standards carried some major changes about the way companies looked to business combinations accounting. The most important one is the elimination of the goodwill amortisation charge which increases the value of reported earnings and EPS, a fundamental ratio for managers and financial analysts. Naturally this will be true as long as the company does not recognise any loss by impairment. Therefore, the GAAP change carried a possible relevant impact on financial reporting. As an example, the table below compares the first time application of SFAS 142 versus a pro forma reporting under APB Opinion 17 for the same period.

Table 3.1 Pro forma impact on EPS in 2001 of selected S&P 500 companies

Company	Industry Classification	Goodwill Amortisation Expense	APB Op. 17 EPS	SFAS 142 EPS	Percent Change EPS
General Electric Co.	Industrial Conglomerates	$1,100	$3.22	$3.42	6.2%
Pfizer, Inc.	Pharmaceuticals	20	0.82	0.82	0.4%
Intel Corp.	Semiconductors	307	2.20	2.26	2.5%
Merck & Co.	Pharmaceuticals	365	2.51	2.60	3.7%
Johnson & Johnson	Pharmaceuticals	93	3.00	3.04	1.3%
Philip Morris	Tobacco	582	3.21	3.36	4.6%
Berkshire Hathaway	Property/Casualty Insurance	477	1025.0	1213.4	18.4%
Tyco International	Industrial Conglomerates	344	2.68	2.80	4.6%
Wells Fargo & Co.	Major Banks	530	2.36	2.55	7.9%
American Home Products	Pharmaceuticals	284	-0.69	-0.59	13.9%

Data sources: SEC fillings, EDGAR Online

Following the business combinations accounting rules change, companies which had higher goodwill amortisation values before 2001 are likely to be more benefited, experiencing larger pro forma percent changes in EPS. Such impacts are to be studied in depth in chapter 5.

It seems arguable that the new FASB rules added transparency to the business combinations accounting, as accounting choice has been eliminated. This change

is also likely to have reduced the cost of analysing financial reporting. In the past, analysts placed lower valuations on companies that amortised goodwill using the purchase method than on companies which did not amortise goodwill, either because they were using pooling, or because they preferred to write off the bid premium in the first year as in-process research and development expenses (Hopkins et al., 2000). As a result, the pooling ban eliminates the bias that analysts may have priced into stocks of pooling companies.

Perhaps the major drawback of the business combinations accounting changes is the use of goodwill impairment tests. Regarding purchased goodwill, and other intangible assets, companies are expected to recognise losses by impairment, whenever the deals have not met expectations. However, despite the available guidance about the developing of impairment tests, the decision about undergoing impairments is possibly subject to managerial discretion. Therefore, the new rules introduced an element of uncertainty and additional risk into future earnings estimation due to potential impairment surprises. Nevertheless, stock prices should not decline significantly for companies with one-time impairment write-offs unless they become habitual (Hopkins et al., 2000). Together with the analysis of the impacts on EPS, the analysis of possible effects from impairments is also to be examined in chapter 5.

3.7 Conclusions

One of the main arguments used in favour of pooling of interests was the possible negative impact from its elimination on M&A activity, and consequently on the economic activity. As FASB recognises, the accounting policy produce effects, and therefore any changes in business combinations accounting needed to be carefully discussed, as M&A is a very important activity for the economy of the USA. The FASB continued arguing that the pooling elimination would end accounting choice in business combinations accounting, and therefore the new standards would bring more transparency and fairness of financial reporting to the companies involved in M&A deals. In

order to achieve this desiderate, the FASB had to compromise and to find a conciliatory solution: pooling was definitely to be eliminated, but purchased goodwill accounting would be changed. Indeed, replacement of purchased goodwill amortisation by impairment testing seemed to have mitigated the outstanding criticism from the business community (Ribeiro & Crowther, 2008b).[133]

Whether FASB's changes did not produce any economic effects on M&A activity is not clear. Apparently, there were no significant economic effects on M&A activity and on the economy in general. Indeed, the M&A activity did not suffer any significant setback and the economy recovered from the weak environment of the early 2000's. Nevertheless, as shown in Fig. 3.5, the M&A activity remained flat for a long period, and therefore one can wonder whether it may be related to FASB's changes. Moreover, the examination of the changes in business combinations accounting and its possible impacts on M&A activity and on financial reporting are yet to be comprehensively examined by the literature, being therefore these issues to be the subject to an in depth exploration in this thesis.

[133] To best of the knowledge of this author's thesis, systematic criticism about pooling elimination could not be found expressed in more recent literature.

Chapter 4 Hypotheses

4.1 Introduction

As examined earlier, by means of literature review and analysis of accounting standards, changes in accounting policy may produce economic and social effects. The forces and actors behind such changes were also subject to examination. In fact, there is a perceived dichotomy between standard-setting accounting policy, and corporate and political lobbying. The case of the changes in business combinations accounting illustrates such dichotomy well.

Another reason for making business combinations accounting such an interesting phenomenon to study, was the controversial duality that prevailed until recently in the USA. As discussed earlier, the accounting choice in business combinations has always been subject to criticism (e.g. Briloff, 1967, 1968; M. L. Davis, 1991; Eigen, 1965; L. C. Phillips, 1965; Rosenfeld & Rubin, 1985; Wyatt, 1967), and its effects in financial reporting and in managers and investors decisions are well documented in literature (e.g. Aboody et al., 2000; Anderson & Louderback III, 1975; Ayers et al., 2000, 2002; R. M. Copeland & Wojdak, 1969; M. L. Davis, 1990; Erickson & Wang, 1999; Gagnon, 1967; Louis, 2004; Nathan, 1988; Weber, 2004).

Like business combinations accounting, the study of the occurrence of M&A waves, a stream of research from economics and finance, is also of interest for this thesis, as it is a major phenomena in M&A activity. As examined earlier in

this thesis, although broadly researched, it was not, however, possible to develop a comprehensive theory to explain its occurrence. Nevertheless, there is plenty of evidence concerning the M&A activity, providing diverse explanations about its occurrence and pattern, which contributes in terms of M&A understanding, being therefore valuable for the developing of the present research.

Having discussed earlier the economic consequences from accounting policy changes, it is therefore of interest to explore whether the accounting for business combinations changes have affected the M&A activity, measured by the number of deals completed.[134] This is the first main research hypothesis to be tested.

As many have argued that the proposed changes in M&A accounting policy would constrain M&A activity, these are also examined in this chapter, by means of literature review on M&A cancelations and withdrawals, whether such suggestion should also be taken into consideration. As it was found feasible to test such suggestion in a form of an assumption, a second main research hypothesis was formulated, as shown in this chapter.

The presentation of the research hypotheses is preceded by an in depth description of the M&A activity during the periods of study: short and medium term, in the period 2000-2002; and long term, during the period 1994-2008. Such description is followed by the presentation of the main research methodology used in M&A empirical studies. Such exhibition is used to justify the methodology that has been chosen to test the research hypotheses.

Finally, after the presentation of the research hypotheses and their underlying rationales, the reasons that justify the development of the hypotheses in the current form are shown in the conclusions.

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[134] It could also be of interest to measure by the value of M&A deals completed. However, as to be point out later in this thesis, in most cases M&A deals values are not disclosed and, when so, valuations are often not consistent among the several M&A data providers, particularly whenever payment includes other means than cash (e.g. shares, options, warrants).

4.2 M&A activity during the 2000-2002 period

In order to assess any potential effects on the M&A activity as a consequence of the changes on the accounting regulation, it may not be advisable to use a very short period of a few days only, like many studies on M&A returns, as the effects may last for larger periods: weeks, months, or even years. On the other hand, nor should one choose to have a very long period, like studies on M&A waves which necessarily make very long term analyses, as such effects may be totally diluted in very large periods. However, impacts may have persisted hitherto and may therefore be visible in the long run. Accordingly, a long term analysis is also of interest and has therefore been done in this research, time obviously being limited by the largest existing dataset available when this research has been developed. As a result, this study has a long-term period of analysis - fifteen years, from 1994 to 2008 – which should be long enough to capture any long lasting effects; and a short-middle range period of analysis - three years, from 2000 to 2002 - where any possible short and middle term impacts are more likely to be revealed.[135]

During the triennial period started in 2000, the overall M&A activity in the USA, both in number and value of deals, was of a general downward trend, as shown previously in Fig. 3.5. A similar scenario was set for stock exchange markets. On 14 January 2000, the Dow Jones index started a 33-month slide, and eight weeks later NASDAQ would follow in its steps. In 2000, it was not only the stock markets that started a bearish period, since the positive economic cycle and the M&A activity were fading as well.[136] The M&A activity slide then

[135] The middle range period of analysis was defined to be 3 years, as this corresponds to the middle of the interval of what can be considered a short term period - less than one year - and a long term period - more than 5 years. Since such selection can be regarded as arbitrary, a sensitivity analysis was also developed in order to cover shorter period intervals.

[136] According to the National Bureau of Economic Research (NBER), the economic cycle faced a contraction from March to November of 2001 (National Bureau of Economic Research, 2007). It is important to note that NBER does not necessarily recognise a period of two consecutive

reached a bottom by the time of the September 2001 terrorist attacks. Following the disruption caused by the 9/11 events, the activity started a stagnation period that would prevail until the end of 2002.

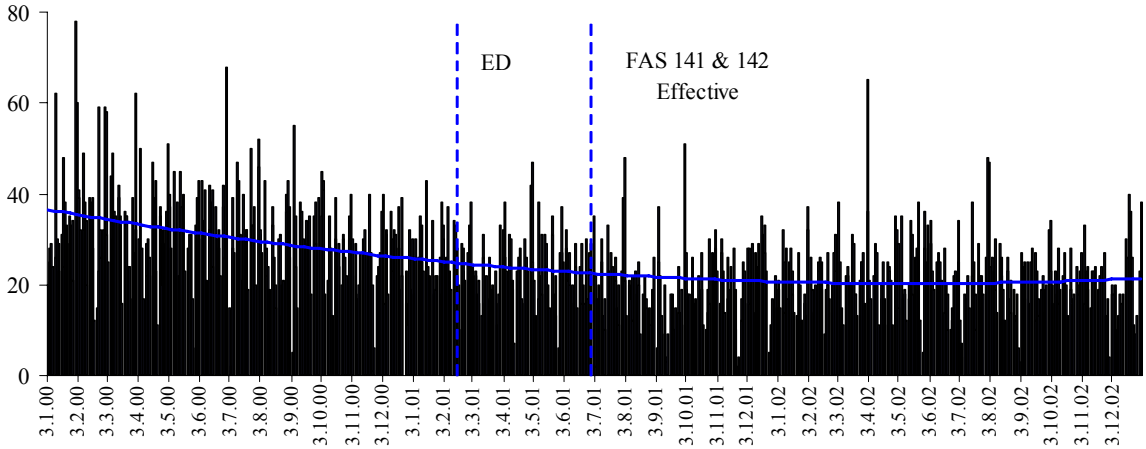

Fig. 4.1 Number of announced M&A deals, in the period 2000-2002, during weekdays

Order two polynomial trend line added.

Data source: SDC Platinum (Thomson Financial, 2006).

Looking at the graph exhibited in Fig. 4.1, one can observe that, apart the initial downtrend, the M&A activity appears remarkably stationary afterwards. The M&A activity also seems to reflect the existing bear stock market, which started in 14 January 2000 and ended in 19 September 2001. The figure signals two of the most important moments in this research: the first being the publication of the revised exposure draft, which confirmed the pooling ban and replaced the initial proposal of purchased goodwill amortisation over a maximum of twenty years, by impairment tests, dated 14 February 2001; and the second being the effectiveness of the final pronouncements, 1 July 2001. The downward trend continued after these events, as one can consider the period of the 9/11 events, and the following end of the bear market, as the reversion

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quarters of decline in real GDP as a recession, as it rather considers a contraction as "a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales."(National Bureau of Economic Research, 2007).

point.[137] Therefore, one can pose the question as to whether the shift was linked exclusively to endogenous factors, mainly concerning the M&A environment itself, or if it can also be explained by exogenous causes, which includes any possible effects that may have arose from the changes in the accounting rules, changes in stock markets conditions, etc.

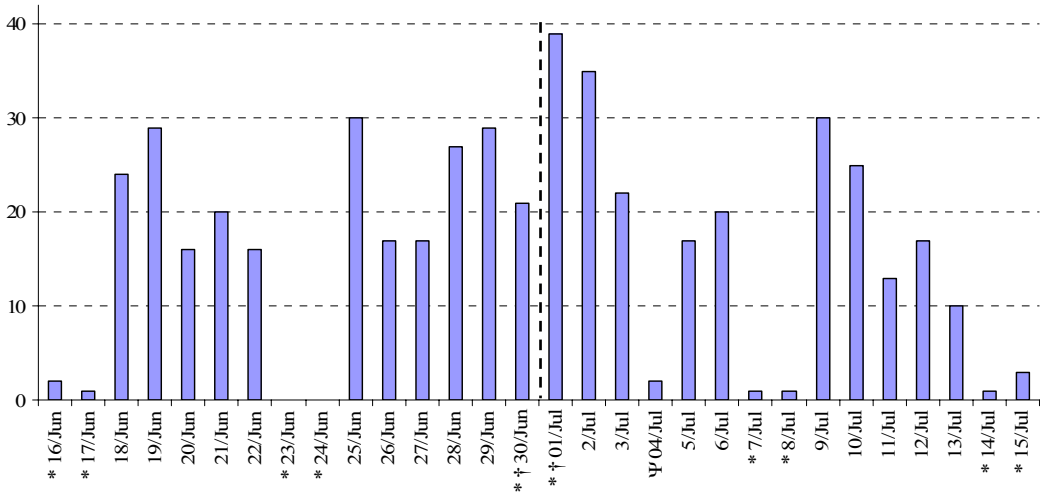

Fig. 4.2 Number of announced M&A deals in the thirty days surrounding the event date

* Weekends

Ψ Independence Day (Federal Holiday and non-trading day)

† One day event (-1/+1 day standards' effective date)

Data source: SDC Platinum (Thomson Financial, 2006).

An even more in-depth analysis of M&A activity by the time the accounting standards were enforced is made possible through examination of Fig. 4.2. It provides a further zoom into the M&A activity during the two weeks that preceded the effective date, and during the first two weeks thereafter. At first glance, one cannot perceive any unusual circumstance. The first two days after the effective date were the busiest during the period, but that could be explained by a number of other different reasons such as: i) M&A activity tends

[137] Reversion point in the sense of a rebound from the 9/11 week low, which generated an immediate positive response, followed by a feeble recuperation, albeit almost imperceptible and that would not last for a long time.

to peak whenever a month changes, which is the case as the effective date is 1st July; ii) that tendency to peak may be reinforced in specific months, or whenever a new quarter begins, which is again the case as the date also stands for the start of the third quarter and, cumulatively, second semester of 2001; and iii) the first week of July has a holiday on a Wednesday, which is a non--trading day, and consequently results in a natural concentration of deals in the beginning of the week.[138] Furthermore, the Friday before the key date also seems to be abnormally busy, as Friday is usually the quietest weekday. Actually, the whole week before the critical weekend was good in terms of M&A activity. Once more, the explanation can be related with diverse endogenous factors, such as the 'end-and-beginning-of-the-month phenomenon'. Further issues related with the peculiar M&A pattern will be later subject to a comprehensive analysis.

Consequently, one could argue that it would not be possible to identify any obvious short-term effects, either positive or negative, resulting from the event in analysis. The activity registered in the first two days that followed the standards effectiveness date could perhaps be explained by the pattern of the M&A activity itself, while the following decrease in the remaining days of the week, could be possibly justified by the mid-week holiday, which resulted in a concentration of deals in the first two trading days of the week. However, there is a fact that casts a shadow over this rationale: usually weekends are extremely flat in terms of M&A activity, regardless any seasonal pattern effects, as to be discussed in the following section (vid. e.g. Branch et al., 2001).

weekends analysis:

It has been highlighted that weekends are flat in M&A announcements. Indeed, underlying theory related to the timing of M&A announcements supports that M&A agreements are more likely to be completed over a weekend and

[138] Conclusions drawn by the author primarily from data observation, and secondly from literature.

announced only on the following Monday or during other weekdays (Branch et al., 2001).[139]

In fact, evidence corroborated for M&A activity during weekends can be accounted as non-existent to residual (Thomson Financial, 2006). For example, according to Thomson Financial (2006) data, at the weekend before the event, not one single M&A deal has been announced. However, the weekend of the effectiveness' date of the new M&A accounting standards, 1st July 2001, reveals an abnormal activity, as shown below in Fig. 4.3. During this specific weekend, the M&A activity was as high as in an ordinary weekday (vid. again Fig. 4.2), without having anything available in the existing literature about the M&A pattern of activity that could be used to justify such a high level.

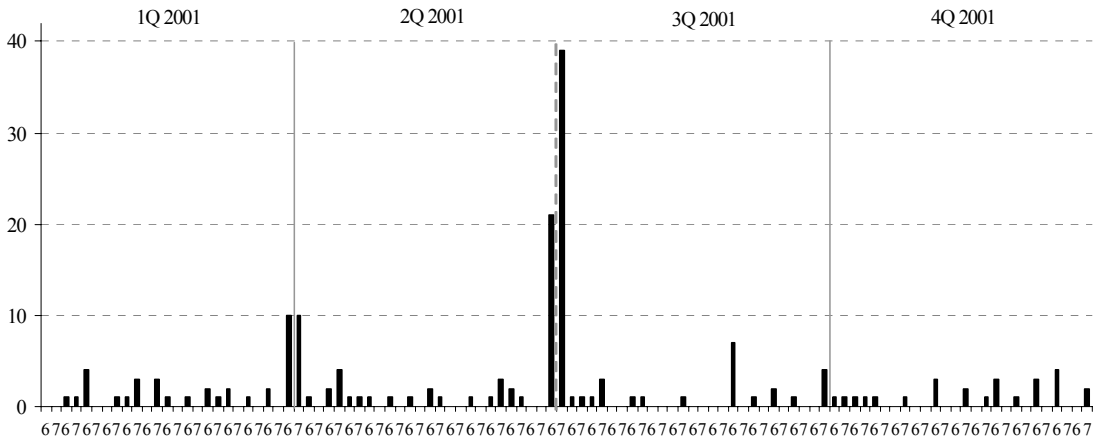

Fig. 4.3 Number of M&A announcements during weekends in 2001

Number six for Saturdays and number seven for Sundays.

Data source: SDC Platinum (Thomson Financial, 2006).

[139] This is related to the fact that M&A announcements typically require boards of directors' approvals (vid. e.g. Branch et al., 2001; Gaughan, 2002; Weston et al., 1998). In order to allow both firms' board members and supporting staff involved in the M&A deals to consider and discuss the deal terms (e.g. legal and financial advisors, accountants and tax advisors, auditors, etc), this type of operations are usually prepared and completed during weekends, a more quiet period when board members are more free from their businesses duties and have a more released agenda (Branch et al., 2001).

The abnormal activity in the -1/+1 event day window is made clearly visible at Fig. 4.3. In 2001, a total 176 deals were announced during the 52 weekends, with more than one third being announced during a single weekend, the event one, with 21 deals in 30th June, Saturday, and 39 deals in 1st July, Sunday (Thomson Financial, 2006). Although these figures benefited from the coincidence of several positive factors, such as the 'end-and-beginning-of-the--month phenomenon', it seems obvious that any global justification for such a high level of activity in a single weekend needs to include the effectiveness of the new accounting standards as an explaining factor.[140]

Indeed, the effects directly related to the specific M&A pattern of activity may only serve as a partial explanation. Perhaps even as a very minor justification. Serving as illustration, one can take into examination the second busiest weekend in 2001, which matches the end of the first quarter and the beginning of the second quarter. This weekend produced 20 deals, equally distributed by Saturday and Sunday, which, on the one hand, contrasts with the mere three deals average for weekends during the sample period, but, on the other, totals only one third of the activity registered during the event weekend. In addition, apart the event weekend, during the 2000-2002 period, the maximum number of announcements in a single weekend day was on 1 July 2000, Saturday, with 21 deals, at a time when the M&A activity was notably stronger.[141]

It is therefore arguable that abnormal activity occurred around the event weekend, as the M&A pattern of activity, with its own particular effects, can, at best, provide a partial explanation only. Consequently, it seems reasonable to consider that the effectiveness of the new standards had at least an immediate positive impact on the M&A activity, both previously and immediately during the event day. Previously, as a very unusual M&A activity may be explained by a last day rush for pooling, on 30 June 2001; and immediately, on 1 July 2001,

[140] Further issues related with the M&A pattern of activity will be discussed later in this thesis.

[141] The weekend of the 1st and 2nd July, totalled 21 deals versus the 60 deals of the event weekend.

as then a number of deals, that were possibly delayed to take advantage of the new rules of accounting for goodwill, could finally be announced.

Nevertheless, one could still doubt the reasonableness of the suggestion that the accounting rules change could be a reason for an increase in M&A announcements in the event weekend. Indeed, it may seem reasonable to assume that it is the completion date of the deal, and not the announcement, that would matter in terms of accounting treatment. Therefore it would not be reasonable to focus on the announcements around the event day when, in terms of the accounting rule, the date of completion is what would matter. However, this is not true, because it is the announcement date that is critical. Regarding the effective date and transition, paragraph 59 of SFAS 141 states that (Financial Accounting Standards Board, 2001a):

> "(...) this Statement shall be effective as follows:
>
> a. The provisions of this Statement shall apply to all business combinations initiated after June 30, 2001. Use of the pooling--of-interests method for those business combinations is prohibited.
>
> b. The provisions of this Statement also shall apply to all business combinations accounted for by the purchase method for which the date of acquisition is July 1, 2001, or later.".

Accordingly, if a deal is "initiated" on 1 July 2001, it can no longer be considered for pooling of interests and therefore has to be recorded under the "new" purchase method, the single method available from the event date. It is therefore suggested that it is the announcement date that it is important, making the completion date utterly irrelevant. As the terms and conditions of "initiated" could result dubious, further clarification was needed, for which the "old" AICPA's APB Opinion 16 revealed to prove suitable enough for FASB (SFAS 141, paragraph 59, Financial Accounting Standards Board, 2001a):

> "The following definition of initiated from paragraph 46 of Opinion 16 shall be used in determining the effective date of this Statement:
>
> > A plan of combination is initiated on the earlier of (1) the date that the major terms of a plan, including the ratio of exchange of stock, are announced publicly or otherwise formally made known to the stockholders of any one of the combining companies or (2) the date that stockholders of a combining company are notified in writing of an exchange offer. Therefore, a plan of combination is often initiated even though consummation is subject to the approval of stockholders and others.".

It is therefore clear that it is the M&A announcement date that matters, provided that includes some major deal terms, i.e. that it is not simply a rumour. This fact reinforces the analysis made in this section about the possible importance of the event weekend in terms of announcements. In addition to the considerations already made, an analysis of the eight weeks around the event day also suggests that such positive impact may not be limited only to the weekend event, as it is likely to have been spread onto the immediate surrounding weekdays (Thomson Financial, 2006). It is possible then to conclude that some directly related impact is likely to have been made and one could estimate it as resulting, at least, in some dozens of deals in a three days event window (-3,+3). These figures reveal the existence of an impact in the immediate term, albeit longer-running abnormal effects are not possible to distinguish. However, it is admissible to question whether the impact was also made longer-lasting, affecting the M&A activity not only in the immediate run, but in the short, middle, and long terms as well.

4.3 M&A activity during the 1994-2008 period

In a broader time-interval analysis, between 1994 and 2008 the M&A activity exhibits a cyclical pattern of occurrence, composed during this period by two M&A cycles. Shown below is Fig. 4.4, which documents the fifth M&A wave

occurred in the last decade of the 20th century, and also captures the following M&A movement occurred in the 2000's - which more than a wave in the terms described previously in this thesis, may be considered instead as a common M&A cycle, or, at best, perhaps as a quasi-wave.[142] The last section of the graph also documents the effects of the beginning of the latest financial crisis, which resulted in a significant decrease in the M&A activity, with a sudden crash in the fourth quarter of 2008 (4Q08) following the Lehman Brothers' failure and the financial system quasi-meltdown in September 2008 (vid. e.g. Evans, 2008). The effects of the financial crisis were so dramatic in 4Q08 that it resulted in the lowest level of quarterly M&A activity during the whole period of analysis.

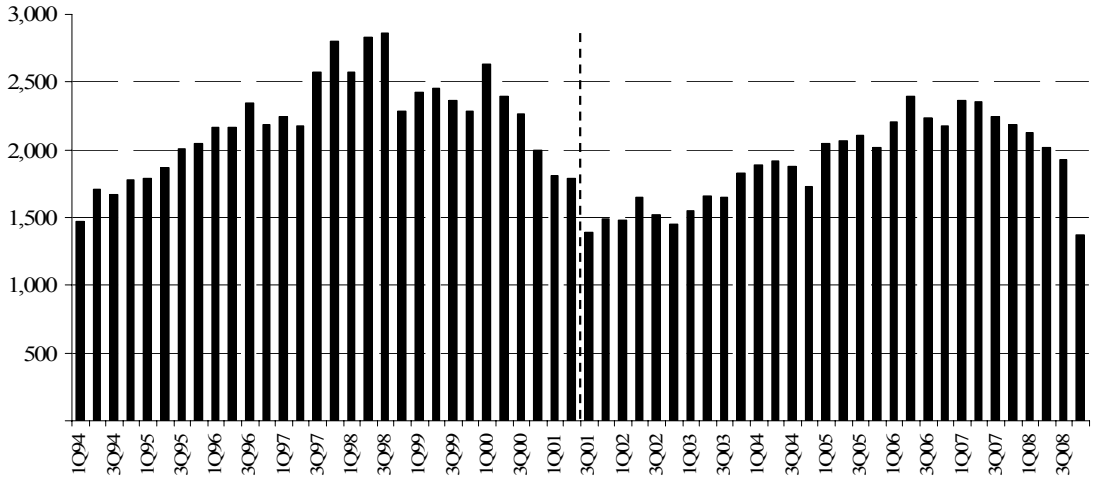

Fig. 4.4 Quarterly number of M&A deals announced and completed during the 1994-2008 period

Data source: SDC Platinum (Thomson Financial, 2009).

It is also interesting to observe that the second lowest level of M&A activity during the 1994-2008 period occurred in 3Q01, exactly the first quarter where any effects from the effectiveness of the new M&A accounting rules could have been made visible. During the fifth M&A wave, the M&A activity peaked in 1997-1998 and again in 1Q00. Then the M&A activity decreased continuously

[142] To the best of the author's knowledge, the existing literature does not broadly and unanimously recognise the M&A activity during the 2000's as a M&A wave.

throughout the time when pooling of interests was still an option and purchased goodwill was subject to amortisation charges. Immediately after the pooling elimination and the replacement of amortisation by impairment tests of purchased goodwill, in 3Q01 the M&A activity recorded a sudden drop, and bottomed. It seems therefore reasonable to continue questioning whether the changes in business combinations accounting also contributed to such decrease of activity.

Additionally, the M&A activity remained lethargic after the effectiveness of the new accounting rules. Indeed, despite a gradual recovery in the quarters following the effectiveness date, the pre-3Q01 level of M&A activity was only restored more than two years after, in 4Q03, and only from 2005 onwards the M&A activity remained systematically above pre-3Q01 levels.[143] Therefore, one can reinforce the interest of questioning as to whether the new M&A accounting had any significant contribution to such low level of M&A activity, in this case in the scope of a long period examination.

Finally, data shown in Fig. 4.4 suggests that the publication of the business combinations accounting final ED, in 1Q01 may have not resulted in any immediate significant impacts on M&A activity. Nevertheless, possible medium and long run impacts from the ED issuance need to be taken into consideration, as the level of M&A activity pre-1Q01 was only restored four years later, in 1Q05.

4.4 Research methodology

Regression is the most used research methodology in M&A empirical studies. There are many different types of regressions and modified regression-based models, which have been used for testing hypotheses in M&A research. Some examples follow:

[143] Except in 4Q01.

studies on M&A waves and pattern of activity:

Since early times, several authors utilised correlations and regression models to try to determine and to explain the occurrence of M&A (Markham, 1955; R. L. Nelson, 1959, 1966; Weston, 1961). More recently, a large number of studies, which focused on the M&A waves occurrence, have employed time series and regression-based models. The most common approach was to model M&A series by autoregressive processes, such as ARIMA processes, (e.g. Barkoulas et al., 2001; Chowdhury, 1993; Clark et al., 1988; Shughart II & Tollison, 1984), but other approaches, such as the multi regression model (e.g. Steiner, 1975), or the use of regression analysis to fit a set of sine curves to the time series data on M&A activity (Golbe & White, 1993), were used as well. Nonlinear time series models and Markov regime switching regression models have also been employed (e.g. Linn & Zhu, 1997; Town, 1992).

Currently, the authors who research the M&A pattern of activity continue to apply regression-based techniques, regardless of the research stream. This is reflected in the two mainstream approaches: neoclassical (e.g. Andrade et al., 2001; Harford, 2005; Jovanovic & Rousseau, 2002), and behavioural (see e.g. Rhodes-Kropf et al., 2005; Rosen, 2006), as they frequently use all sort of different types of methodologies involving regressions, from simple ordinary least squares (OLS) estimators, up to event studies, probit, or logit regressions, using the maximum likelihood estimation.

studies on returns from M&A announcements:

Mostly using standard event study methodologies, in this strand of studies regressions are widely employed to measure cumulative abnormal returns (CAR), a procedure where a regression of the post-M&A abnormal performance on the pre-M&A abnormal performance is applied (inter alia Banerjee & Eckard, 1998; DeLong, 2003; Hazelkorn et al., 2004; Jensen & Ruback, 1983; Leeth & Borg, 2000; Mitchell et al., 2004; S. B. Moeller et al., 2005).[144] Additionally, other types of regression models, such as multiple regressions, or logit regressions, are also commonly used to control and examine other issues

[144] The event study methodology use goes back to Fama et al. (1969).

concerned to M&A announcements and returns (see e.g. Dymski, 2002; Hubbard & Palia, 1999; Matsusaka, 1993).

The event study methodology is relevant to this thesis as it inspired the development of models designed to try to capture abnormal effects based on equidistant time intervals of analysis, *ex ante et ex post* from a triggering point, i.e., the consideration of the effectiveness of the new M&A accounting rules as an event.

studies on M&A accounting methods:

Another example of research, which also uses regression models, is the one that examines the effects of the existence of different accounting methods for both M&A deals and purchased goodwill (e.g. Aboody et al., 2000; Ayers et al., 2002; M. L. Davis, 1990, 1996; Hong et al., 1978; Lindenberg & Ross, 1999; Moehrle et al., 2001; Norris & Ayres, 2000; Robinson & Shane, 1990; Weber, 2004). In this type of literature, it is possible to observe the use of CAR regressions, multiple regression analysis, or logit regressions.

This strand of research was also inspirational for this thesis, as it uses methodologies developed to test issues related to the use of pooling versus purchase method, and also related to purchased goodwill amortisation versus impairment testing. This type of studies has also contributed to this thesis' models development by offering substantive evidence, such as regarding the analysis of the effect of passing time on business combination accounting.

studies on M&A cancellations:

Finally, the studies regarding M&A withdrawals also use regression techniques, such as: event studies (CAR), OLS estimations, or logistic regression analysis (see e.g. Davidson III et al., 2002; Muehlfeld et al., 2007).

Although the current research is based on existing theory, it nevertheless presents some singular characteristics and poses research questions, which find no parallel in the literature that has been reviewed. The present study has the

specific purpose to investigate the existence of any impact on M&A activity as a consequence of the new FASB's business combinations standards, which abolished pooling and replaced purchased goodwill amortisation by impairment testing. This is in contrast to studies on M&A waves, which try to verify the existence of waves; studies on M&A returns, which use the CAR methodology and are focused on the measurement of market returns provided by announcements; or studies on M&A accounting, which typically look for the pooling versus purchase question, or other issues concerning purchased goodwill amortisation versus impairment.

To summarise, existing literature offers critical findings, valuable methodological bases, and models that were used in order to develop the current research. Additionally, it seems justified to use regression analysis to test the research hypotheses, as regression is the most widely used methodology in mainstream literature in M&A research. Accordingly, the development of the models used to test the research hypotheses are based in regression analysis, as shown in chapter 7.

Besides specific models developed to test the research hypotheses, are also analysed other possible *collateral* effects from the changes in the accounting policy. Evidence supporting such possibility is presented in chapter 5, by means of analysis of questionnaires and annual reports from companies involved in M&A, following the business combinations accounting changes. The examination of such evidence is then to be triangulated with the results from the regression models' results, being jointly discussed in the final chapters of this thesis. A discussion regarding methodological issues related to questionnaires and analysis of annual reports in M&A research follows.

studies on M&A questionnaires and financial reporting surveys:
The use of questionnaires is common in M&A research, and topics may vary widely, from assessment of preferred business combinations accounting method (e.g. Association for Financial Professionals, 2000; K. Nelson & Strawser, 1970); to topics related to post-M&A integration and success evaluation (vid. e.g.

Coopers & Lybrand, 1993; Financial Accounting Standards Board, 2000; J. Hunt et al., 1987); among others.

In terms of surveys in accounting and finance related to M&A questionnaires, methodologies also involve regression analysis. In this case, surveys serve mostly as a source of evidence to be used in order to construct variables integrating the development of regression models (vid. e.g. Duggal & Cudd, 1998; Moehrle et al., 2001).

Other methodologies than regression are very common in M&A surveys. Apart testing differences in means between study groups, using Student's t-test and other parametric statistics, the most common methodology is the use of tests of hypothesis of independence among variables using chi-squared statistic (Brenner & Shuey, 1972; Hopkins et al., 2000; K. Nelson & Strawser, 1970), and also using other nonparametric tests, such as Kruskal-Wallis and Mann-Whitney U (vid. Hopkins et al., 2000).

As for surveys of annual reports concerned with disclosures related to business combinations accounting, there is no particular methodology used, being the methodological analysis often limited to the examination of descriptive statistics (vid. e.g. American Institute of Certified Public Accountants, 1968-2003; Duvall et al., 1992; Wyatt, 1963).

4.5 Factors and theories explaining M&A activity

As referred to in chapter 3, the overall evidence suggests that diverse macroeconomic variables are associated with the timing of M&A. The literature has developed several hypotheses about the relationship between M&A and business cycles, and/or financial markets. Some examples of literature, using aggregate or industry-based data, include Weston (1953), Markham (1955), R. L. Nelson (1959), Weston (1961), Gort (1969), Singh (1971), Steiner (1975), Beckenstein (1979), Melicher et al. (1983), Guerard (1985), Becketti (1986),

Golbe & White (1988), Weston et al. (1990), Blair & Schary (1993), and Mitchell & Mulherin (1996).

The M&A activity is procyclical, as generally it leads the business cycle slightly (see e.g. Golbe & White, 1988; R. L. Nelson, 1959; Steiner, 1975; Weston et al., 1990). According to Weston (1990), the activity is also approximately coincident with share price movements. Several authors find that share prices lead the M&A activity (e.g. R. L. Nelson, 1959), while others conversely conclude that M&A activity lags the stock market movements (e.g. Melicher et al., 1983).[145] This divergence of findings may be partially explained by changes in markets trends, but also by the time spent between the beginning of the negotiations and the accomplishment of the deal. In the 1970's, Halpern (1973) and Mandelker (1974) find this period to be on average about six months. Therefore Melicher et al. (1983), who evaluated share prices changes to precede M&A completed deals by one quarter, concluded that M&A negotiations lead share price movements by about one quarter.

In addition to macroeconomic factors, microeconomics also plays an in important role. For example, Lev & Mandelker (1972) discussed the microeconomic consequences of mergers, which generated a reply from Reid (1975). More recent literature argues that both endogenous and exogenous effects are present in M&A activity. This finding was made clear, for instance, at industry-level literature (see e.g. Blair & Schary, 1993; Cabral, 2000; Mitchell & Mulherin, 1996). Therefore, it seems that the development of a theory on M&A should encompass both features.

In terms of endogenous factors, time, seasonality and particular patterns within the M&A activity seem to contribute to partially justify the M&A occurrence behaviour. Effects from holidays and certain weekdays, weeks, months, or

[145] According to Mueller (1980), in West Germany during the 1960s, M&A activity lagged behind share prices. However, in the 1970s, M&A activity tended to lead share prices and other aggregate measures, such as GDP and gross fixed investment.

quarters, often offer remarkable justifications for the occurrence of M&A deals (vid. e.g. Branch et al., 2001; Hirsch, 2004).

Among the exogenous factors related to M&A activity, the majority of literature suggests a relationship not only with stock market prices, but also with industrial production (e.g. Gort, 1969; Markham, 1955; Mitchell & Mulherin, 1996), and with interest rates (e.g. Beckenstein, 1979; Becketti, 1986; Golbe & White, 1988; Melicher et al., 1983; Weston et al., 1990). Extraordinary events, such as the case of the 11 September 2001 attacks on the USA, may also play an important role, while specific industry-deregulatory shocks may result in more long-lasting effects (vid. e.g. Andrade et al., 2001; Harford, 2005; Mitchell & Mulherin, 1996).

Both endogenous and exogenous factors to the M&A activity are discussed in more depth in the models development' chapter of this thesis. In a different stream, but also playing a main role in the developing of the research hypotheses, is the awareness of the implications arising from the existence of accounting choice, and the effects resulting from changes in accounting regulation, particularly concerning the impacts on M&A activity that may have resulted as a consequence of the business combinations accounting changes.

As examined in previous chapters, a strand of literature has studied the market effects of the existence of two different accounting methods for business combinations: the purchase method and the pooling of interests method. It is important to recall that changes in accounting policy may produce economic effects and that accounting choice in M&A has also value implications.[146] Several studies found that firms involved in M&A deals adopted an accounting method based upon certain financial and non-financial characteristics (e.g. M. L. Davis, 1990; Dunne, 1990). It has also been documented that managers

[146] As discussed earlier, if accounting could be effectively neutral then the accounting standards would not produce economic effects. Therefore, if neutrality is not to be assumed, stewardship is required to deal with any significant economic consequences that may result from changes in accounting policy.

preferred pooling and that pooling firms willingly incurred significant costs to achieve the desired financial reporting outcome (Aboody et al., 2000; Ayers et al., 2002; Linsmeier et al., 1998; Lys & Vincent, 1995; Robinson & Shane, 1990; Walter, 1999; Weber, 2004). Despite the preference for pooling, however, empirical evidence supports market efficiency, which means that M&A is valued the same regardless the pooling versus purchase adoption (e.g. M. L. Davis, 1990; Hong et al., 1978 Lindenberg & Ross, 1999; Vincent, 1997).[147] Nevertheless, existing literature also revealed that pooling resulted in mechanical effects on companies' financial statements and on the analysis of the financial statements (Jennings et al., 1996; Vincent, 1997).

The replacement of the purchased goodwill amortisation method by impairment tests may also have had an impact on M&A activity. The research findings indicate that the market reacted negatively to the amortisation of goodwill by purchase firms (e.g. Ayers et al., 2002; Hopkins et al., 2000). Not surprisingly, several authors (e.g. Robinson & Shane, 1990) found that a higher bid premium, enhancing the size of the potential goodwill, increased the likelihood of pooling (Weston et al., 2004). Nevertheless, share prices should not decline significantly for companies with one-time impairment write-offs, unless they would become habitual (Hopkins et al., 2000).

Taking into consideration the anecdotal evidence and the literature findings examined before in this thesis, the first hypothesis to be tested is exhibited below in the null form:

Hypothesis 1

The FASB new pronouncements have had no impact on the number of M&A deals announced and completed.

The analysis of the testing results of this first hypothesis may provide evidence about any impacts on the M&A activity from the abolishment of pooling of

[147] Nevertheless, according to Hopkins et al. (2000), analysts' valuations were lowest when a company adopted purchase method and amortised goodwill.

interests and the replacement of purchased goodwill amortisation by impairment tests. Therefore, this hypothesis tests the appropriateness of FASB's new rules, in the scope of the desired neutrality of the accounting standards. The testing also documents the influence of economic, financial and time factors to the pattern of M&A occurrence.

If significant results about impacts from the new standards on M&A activity are obtained, thereby preventing the rejection of this hypothesis, it would therefore be suggested that M&A activity is unrelated to FASB changes and is rather driven by financial, economic, time, or other factors. Conversely, rejection of hypothesis number one would suggest that FASB new pronouncements had produced a significant impact to M&A market participants and failed to minimise any possible economic effects. In this case, the other two possible hypotheses, called alternative hypotheses, are that the M&A activity benefited from the accounting changes, or that M&A activity did not benefit from the accounting changes.

4.6 Reasons explaining M&A abandonment

Being successful in M&A transactions seems far from easy (e.g. Kummer & Steger, 2008). Unsurprisingly, a substantial number of announced M&A deals are never completed (e.g. Muehlfeld et al., 2007; Ribeiro & Crowther, 2007a). For example, Pickering (1978) reports a 14% abandonment rate, while Muehlfeld et al. (2007) estimate it to be as high as 27%.[148] In the period in between 2000 and 2002, the rate of deals announced but not completed in the USA was 20%.[149] This fact is relevant, because M&A can be very expensive, and so can its abandonment, since firms need to allocate significant resources while planning and preparing a deal (see e.g. Weston et al., 2004). The literature has also detected a loss of value in the period between the time of announcement

[148] Muehlfeld et al.'s percentage is not for aggregate data, but only for newspaper industry during the period 1981-2000.

[149] Author's estimation (*source:* Thomson Financial, 2006).

and withdrawal, particularly for target companies (see e.g. Bradley et al., 1983; Fabozzi et al., 1988).

It is important to stress that literature concerned with the study of M&A abandonment causes is scarce. The majority of the studies focus on the post--M&A period analysis; only a few are concerned with the examination of the pre-completion phase and with M&A cancellations.[150] Muehlfeld et al. (2007) point out a major difficulty related to this type of analysis:

> "Decision-making processes at the pre-completion stage are largely unobservable to financial markets and difficult to capture based on accounting data.".

Despite the non-existence of a global theory, existing literature provides some evidence to help explaining these occurrences. The explaining factors are mainly related with the type and way of concretisation of the M&A deal. Bidder and target firms' characteristics and attitudes also play key roles. Furthermore, it is not easy to track the route of a M&A bid, as it may roll over a large period. Bradley et al. (1983) note that a potential M&A cannot be immediately classified as withdrawn if the first bid fails since there is the possibility of subsequent bids. In fact, a long period of time may pass before the M&A deal can be confirmed as withdrawn, cancelled, or unsuccessful.

Dodd (1980) emphasises that M&A bids and proposals are subject to discretional decision from the management. The target firm's shareholders delegate the decision to the management, but hold the power to vote after their recommendations have been made following M&A proposals. Nevertheless, the management has the power to decline any friendly M&A proposal without presenting it to the shareholders. According to Davidson III et al. (2002), this power can be regarded as a safeguard for the firm, insuring that the M&A deal is adequate (Franks & Mayer, 1996), but, conversely, it can also be perceived as

[150] Examples of literature concerned with pre-completion and M&A cancellations include Asquith (1983), Wong & O'Sullivan (2001), and Davidson III et al. (2002), as discussed in this thesis' section.

an instrument of protection for the management, used with the purpose of avoiding the loss of their own positions in the target firm as a consequence of a successful takeover, at shareholders expense (Karpoff et al., 1996). Consequently, cancelled M&A deals often reflect an agency theory issue, where the interests of the management do not match with the interests of the shareholders (Davidson III et al., 2002).

Concerning the bidder's attitude, Holl & Kyriazis (1996) point out that hostile takeovers are more likely to meet resistance from target firms. Negotiations that start friendly often result in disagreements. This makes transactions more costly and increases the likelihood of a bid cancellation. If a bid is considered friendly, one could expect it to be less dependent from negotiations to be successful, as it would be less susceptible to face resistance from the target firms' management teams (Wong & O'Sullivan, 2001).

Wong & O'Sullivan (2001) also suggest that the method of payment may also help to explain the M&A abandonment phenomenon. Cash is easy to value and makes the bid more attractive to target firms' management and shareholders. Consequently, its use increases the possibilities of M&A completion, since it reduces the prospects of disagreements between participants during the negotiations.

Finally, in what concerns the implications of regulation issues in business combinations accounting to the completion of M&A deals, it is important to bear in mind that FASB's new M&A accounting standards have been the focus of much controversy, being arguably one of the most important statements published in recent years, as they transformed deeply the accounting for business combinations in the USA (Ribeiro & Crowther, 2005; Zeff, 2002). As referred to earlier in this thesis, in an unprecedented effort, between 1996 and June 2001, the FASB (2001c) had to deal with some fierce opposition and lobbying, and had therefore to be very diligent in order to adopt the new regulation, as proved by its intense activity, which included issuing four documents for public comment, holding over sixty public meetings, conducting

public hearings and visits, and analysing and discussing more than five hundred comment letters.[151] Indeed, although accounting practitioners and academicians in general supported purchase as the single method for M&A accounting, many firms disagreed, vigorously opposing the pooling elimination.[152] It is therefore reasonable to question whether the challenged, disputed, and controversial changes in business combinations accounting constrained the M&A activity, resulting in an increase of the number of M&A deals withdrawn.

Considering the existing literature and evidence, and the objectives of the present study, it becomes possible to test another general hypothesis, stated in the null form:

Hypothesis 2

The FASB new pronouncements have had no impact on the number of announced M&A deals withdrawn.

If M&A deals, which were previously intended and structured for pooling of interests, can no longer qualify for pooling following this business combinations method elimination, one could expect an increase on the number of M&A withdrawn, as a consequence of FASB's new pronouncements. This is the main suggestion underlying the hypothesis stated above. Nevertheless, despite making no explicit mention, hypothesis two goes beyond the scarce findings and evidence available in existing literature as it implicitly includes economic, financial, and time variables as potential explaining factors of M&A deals cancellations, i.e., the endogenous and exogenous factors referred during the development of hypothesis one, may also contribute to justify the withdrawal of

[151] Including an Exposure Draft (1999a) and a Revised Exposure Draft (2001b).

[152] As discussed earlier, for example, Dennis Powell from Cisco Systems, warned about the potential negative effects on the USA economy (*Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000), while Jim Barksdale, former CEO of Netscape, declared: "AOL/Netscape merger would not have occurred if pooling had not been an option" (*Prepared Testimony of Mr. James Barksdale Partner The Barksdale Group*, 2000).

M&A deals, as to be discussed more in depth in the models development' chapter.[153]

Similarly to hypothesis one, this hypothesis will also test the appropriateness of FASB changes in the scope of the desired neutrality of the accounting standard--setting policy.

Not rejecting hypothesis number two would suggest that the phenomenon of withdrawn M&A deals is unrelated to the FASB changes and is rather explained by economic, financial, business conditions, or other factors. In opposition, the rejection of the hypothesis would imply the acceptance of the alternative hypothesis that FASB's new pronouncements led to an increase of M&A deals cancellations. Furthermore, even if seemingly not so reasonable from a pure theoretical point of view, in case of rejection one could also hypothetically admit another alternative hypothesis: that FASB's new pronouncements resulted in a decrease of M&A deals cancellations.

4.7 Conclusions

The main purpose of the research has been discussed in this chapter: the investigation of the existence of any economic effects resulting from changes in accounting policy's on M&A activity. A set of hypotheses has been placed to allow assessing about the impact of such changes. The hypotheses have been formulated in a general form. Although it is possible to extract sub-hypotheses from the main hypotheses, it is not intended to do so, as it is not a purpose of this research to examine particular characteristics related to M&A activity, and to the economic-financial environment, but instead to focus on the possible impacts from the regulation changes.

[153] An example of parallelism between common determinants for M&A completion and M&A cancelations follows: while a decrease of interest rates is most likely to contribute to an increase of the number of M&A deals completed, a decrease is more likely to result in an increase of M&A deals withdrawn.

Furthermore, evidence on possible effects from managerial decisions about M&A, and on financial reporting, is to be presented and discussed in chapter 5, which follows next. However, such evidence, which has been collected in the early stage of this research, will not be tested having research hypothesis status, as it will serve mostly to enrich the discussion of the results obtained from the main hypotheses testing. Despite this scope limitation, one can argue that this investigation is threefold, since it studies the possible effects of business combination accounting changes on M&A activity, managerial decision-making, and on financial reporting.

Finally, the methodology adopted to test the research hypotheses is shown in chapter 7, together with the discussion of the results obtained from the tests performed; while the justification of the selection of the samples for analysis, and the rationale for its different sets of aggregation, is made in chapter 6.

Chapter 5 Survey and Financial Reporting Analysis

5.1 Introduction

In previous chapters, a qualitative analysis has been undertaken, by means of literature review. Such qualitative analysis discussed whether the changes in business combinations accounting occurred in 2001 may have produced significant effects in M&A activity in the USA. Indeed, FASB's proposals generated widespread concern and criticism from the business community, which was made very clear by representatives of several industries, such as IT, financials, industrials, or healthcare. Moreover, as examined quantitatively in the preceding chapter, it seems obvious that there may have been some very short-term impacts on M&A activity, at the very least, being this particularly evidenced in the weekend when the new accounting standards were made effective.

Following the doubts cast by the performance of both qualitative and quantitative analyses, it seems therefore relevant to investigate whether the accounting changes brought any impact on M&A deals completion from a companies' perspective. Accordingly, a questionnaire was addressed to the top management with financial reporting responsibilities from some of the 500 most important companies in the USA. Additionally, as changes in GAAP may not only produce economic consequences, but also affect significantly the financial reporting, the impact from the new M&A accounting rules on annual reports was measured and examined as well.

The evidence revealed in this chapter, the survey and the annual reports' analysis, is therefore to be triangulated with the results obtained from the research hypotheses testing, as to be shown in following chapters. Finally, the discussion of the implications of this findings' triangulation is to be continued in the final chapters of this thesis.

5.2 Survey on companies' reactions to the new M&A accounting rules

As discussed in earlier chapters, the strong reaction from significant segments of the corporate world to FASB's proposals on business combinations accounting suggested that the adoption of new GAAP could constrain the completion of M&A deals. Even after FASB compromised, agreeing to revise some of the initial exposure draft proposals, the opposition to pooling of interests discontinuation continued to be expressed publicly by pooling supporters.

Therefore, as an initial step of this thesis' research, an exploratory survey was addressed to the companies included in S&P 500 index, by means of a questionnaire, in order to assess the managers' perception about the relevance of the business combinations accounting changes to the M&A activity in the USA. The list of the 500 companies composing the S&P 500 index as at the end of 2004 is shown in Appendix A.[154]

The adoption of S&P 500 index is justified by its representativeness of the corporate environment in the USA. As shown in Appendix A, almost all S&P

[154] The use of companies composing the S&P 500 index by the end of 2004 is justified by the purpose of having the maximum of active companies that could participate in the survey, which was launched in early 2005. The economic downturn and the wave of corporate scandals in the early 2000's led to many corporate failures, by means of bankruptcies or M&A deals. Concurrently, some companies were delisted, or replaced in the S&P 500 constituents list. Therefore, the use of the companies listed in S&P 500 index during the first years of the new millennium would result in a smaller response rate, simply because some companies' existence was transformed or ceased.

500 companies have their headquarters in the USA, apart from four companies which are located in small Caribbean territories, but with USA and global-based operations.[155] Moreover, S&P 500 companies are highly publicised and tracked by data providers, being much easier to find all sort of institutional and financial information that is made available in several informational platforms.

Not all S&P companies have been necessarily involved in M&A deals, and therefore it could be argued that they should not be considered. Nevertheless, as information about companies involved in M&A deals was missing, it was decided to include every S&P 500 company in the survey in order to: i) increase the odds of a higher number of responses, thereby increasing the possibility of collecting a sizeable sample; ii) enhance data triangulation with annual reports data analysis; iii) include a high diversity of companies and different industries; and iv) ensure getting feedback not only from companies involved in the past in M&A deals, but also from others not involved but potentially intending to be.

There are also companies which are not supposed to be involved in M&A due to the nature of their business, as it is the case of Fannie Mae and Freddie Mac. For these companies, and for other that have never been involved in M&A deals, the absence of feedback could be expected. Nevertheless, any contribution from these companies could be taken into consideration, as it could reveal some kind of interest by the possible respondents on the topic.

Earlier, in chapter 4, some literature concerning studies using M&A surveys was examined and may also be referred to whenever appropriate in this chapter, together with other references, as follows. The mail questionnaire format was chosen, since the target population was based overseas. Moreover, mail questionnaires are more frequently used for social research than either telephone or face-to-face interviews (Dillman, 1991). The questionnaire was designed following basic standards for mail surveys (vid. e.g. de Vaus, 2002; Dillman, 1991), as little guidance about international mail surveys can be found in

[155] The headquarters countries shown in Appendix A were mostly taken from EDGAR Online Pro database during 2005. News Corporation was registered in Australia until 2004.

literature (Dawson & Dickinson, 1988; Harzing, 1997; Jobber & Saunders, 1988), even if this shortage is being reduced in recent years (vid. e.g. Harzing, 2006). In any case, this thesis' survey is not truly international, in the sense that it does not try to capture international differences; therefore the most relevant contributes from this strand of literature are related with respondents' approaching procedures and response rates, as shown later in this thesis' section.

Due to the nature and to the complexity of the subject matter, the questionnaire was addressed to individuals with superior responsibilities in the company.[156] This procedure finds parallels in other studies, such as in the one conducted by the Association for Financial Professionals (2000), which surveyed senior level financial professionals. The questionnaire was designed to be as simple and concise as possible in order to increase the odds of obtaining a reasonable response rate from people with limited time and availability (vid. e.g. Frary, 1996). Accordingly, the questionnaire was composed of 5 questions only, all of which could be answered in a very simple way, by making a cross in the appropriate field. As shown in Appendix B, the questionnaire occupied a single page.[157]

The questions were constructed primarily on the basis of the expectations and concerns expressed on questionnaires prepared by the Association for Financial Professionals (2000), Moehrle et al. (2001), and on the feedback received by the FASB (Financial Accounting Standards Board, 2001a, 2001e). Although the questions were formulated primarily as *closed*, i.e., they could be answered with either a single word or a symbol, four of them were simultaneously open-ended, optionally allowing the respondents to express concise comments at their own

[156] The personalisation of the questionnaire was possible following the selection of top managing officers, made through consultation of information available in annual reports and corporate webpages.

[157] The version shown in the appendix is not scaled to the original version, as the answers' fields were downsized in order that the questionnaire could fit in a single page according to this thesis' definitions.

discretion. The objective of using close-ended questions was not only to avoid variation in respondents' willingness to respond in writing (Brace, 1994; Frary, 1996), but also to allow the use of statistical inference, thereby sophisticating the survey results' quantitative analysis. The objective of the use of optional open-ended questions was to allow also some qualitative analysis.

The survey was conducted through postal questionnaires. A covering letter stressed that the questionnaires would be treated as strictly confidential, in order to increase the receptiveness to feedback, even knowing this to not necessarily to increase the respondent's willingness to respond (vid. e.g. Singer et al., 1992). Nevertheless, as M&A deals and business combinations accounting are very sensitive topics, it was therefore necessary to reassure confidence to the potential respondents as much as possible.

A 10% response rate was set as a desirable target, knowing the response rate could be low in mail questionnaires, while also being aware that a low response rate does not necessarily mean that the data collected is biased, as long as the survey targets an homogenous population, as it is the case in this thesis' survey (Leslie, 1972). Furthermore, Visser et al. (1996) demonstrated that surveys with lower response rates, near 20%, provided more accurate measurements than surveys with higher response rates of around 60 to 70%. Additionally, Holbrook et al. (2007), while examining the results obtained for 81 surveys with response rates varying from 5 to 54 percent, found that surveys with much lower response rates were nevertheless only minimally less accurate.

A first wave of 500 questionnaires was posted in early 2005. As one would expect, the immediate response rate was low: 3.8%, perhaps due to the fact that the respondents were based overseas. Jobber & Saunders (1988) tested the hypothesis that managers from the USA are more likely to respond than those from the UK. Nevertheless, they found that responses from managers in the USA were no higher than from counterparts in the UK, suggesting that foreign source effects do not necessarily raise response rates (Jobber & Saunders, 1988). This finding does not corroborate literature suggesting that foreign surveys

generate higher response rates than domestic ones (vid. e.g. Ayal & Hornik, 1986). Furthermore, Jobber & Saunders (1988) found evidence contrary to their own expectations, and suggesting the opposite, i.e., that domestic surveys generate higher response rates than foreign surveys.

As the initial response rate was below target, a polite request was prepared which resulted in a second wave of 481 questionnaires which were posted a few weeks later. The response rate for this insistence was of 3.4%. As the sample collected was not considered large enough, a more direct approach was then followed consisting in electronic insistences (vid. e.g. Dillman et al., 2009). Accordingly, e-mails from the most appropriate individuals and corporate areas were collected from companies' webpages and also from corporate databases. In some cases, it was not possible to use e-mail as a way of communication, as it was found to be necessary to submit specific forms using the companies' webpages. In rare cases it has been necessary to call companies in order to get contact e-mails. Not uncommonly, it has been necessary to send several e-mails to different people in different positions in the same company, in order to find the right person to whom to send the electronic questionnaire.

Overall, replies from the initial questionnaire and insistences were received from a total of 56 respondents, corresponding to a global response rate of 11.2%. However, some respondents declined to answer the questions, while others felt that the questionnaire was not applicable to the scope of their organisations, as M&A deals were non-existent or considered to be irrelevant to the company. Consequently the effective response rate was of 10.4%. The final sample is composed by 52 questionnaires sent and received throughout 2005.

The questionnaires were sent to companies from 10 different industries, but no questionnaires were received by companies from the three following industries: energy, telecommunication services, and consumer staples. Despite this, the spectrum of corporate sectors that comprise the sample is quite diversified and well-weighted, as exhibited in Fig. 5.1 below. Financials, with almost one-third

of the replies, is the most represented sector, followed by industrials and utilities.

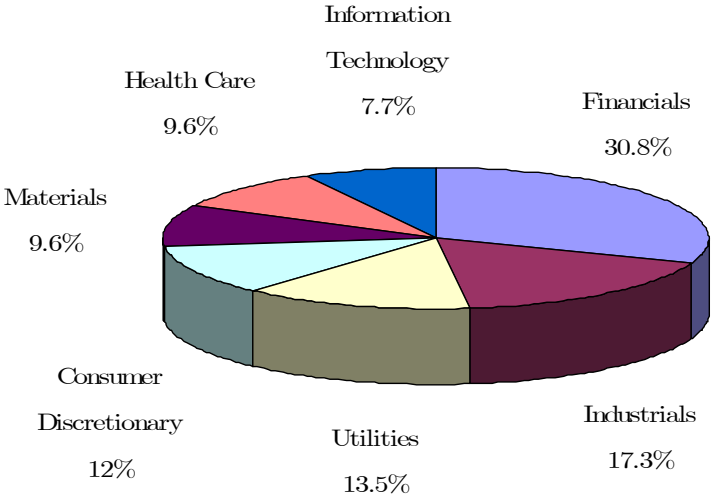

Fig. 5.1 Information on the respondents' corporate sector
Percentages do not total 100.0 due to rounding.

One of the main concerns of the survey was to get feedback from people with effective responsibilities over accounting and M&A departments. Therefore, the questionnaires were addressed individually to the person on the company's board perceived to be more qualified to participate in the study. As shown in the Fig. 5.2 below, this purpose was achieved: two-thirds of the respondents were controllers, and the remaining respondents' occupied relevant positions in the company.

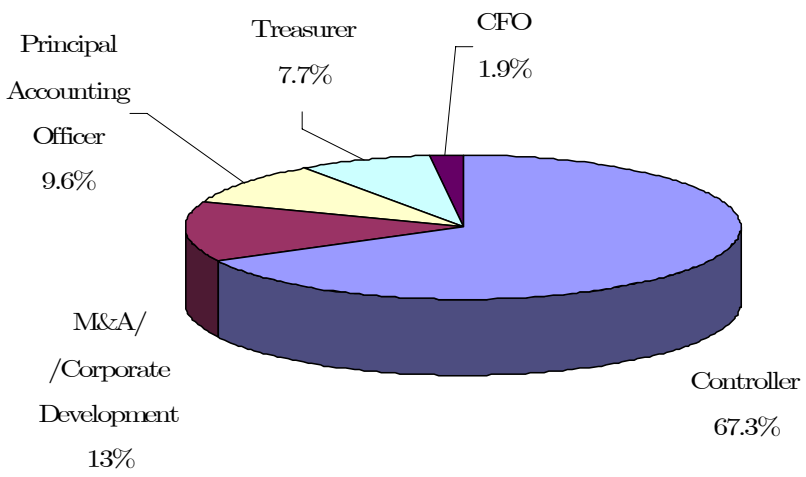

Fig. 5.2 Information on the respondents' professional background
Percentages do not total 100.0 due to rounding.

As far as the author is aware, only 15.4% of the responding persons were different from those to whom the questionnaires have been addressed.[158] Finally, there was a case of a company that was not involved in any M&A deal for decades, but nevertheless replied to the questionnaire. The evidence provided by that company was fully considered and treated evenly, not only because it was a single situation, but also because of the reasons presented before in this chapter.

The first two questions of the questionnaire aimed to identify the possible effects of the new accounting standards upon the completion of a M&A by a company. As suggested by Fig. 5.3, the effects appear to have been minimal.

[158] The questionnaire' cover letter solicited the identification of the person completing the questionnaire, in case of being different from the person to whom the questionnaire had been addressed.

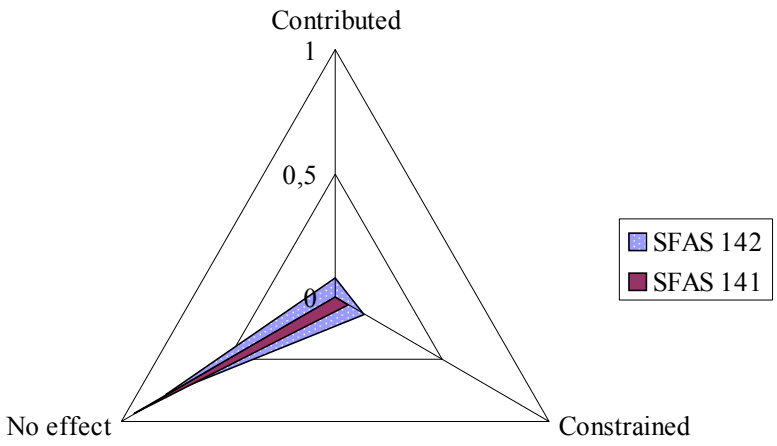

Fig. 5.3 Impact of the new accounting standards on the completion of M&A deals

With regard to SFAS 141, 92.3% of the respondents believed that it did not produce any effect, while the remaining 7.6% considered that pooling discontinuation constrained the M&A activity. Most respondents who pinpointed the existence of effects were from the financial and IT industries, 3/4 of the total, more precisely. Further detailed information about questions one and two can be found in Appendix C.

In terms of qualitative analysis, a respondent from the information technology industry justified the negative impact of SFAS 141 on the completion of M&A deals through the following comment:[159]

> "Constrained. Near term earnings impact of amortizations limit the M&A options, despite the fact economic differences of pooling/purchase can be disputed.".

None of the respondents to this thesis' questionnaire mentioned any positive effect on M&A activity from SFAS 141 adoption.

[159] Every respondents' comment directly related to this research questionnaire is quoted in this section of the thesis.

As regards the effects of SFAS 142, which replaced goodwill amortisation by impairment tests, the range of the answers was wider, although the majority also believed it has neutral effects: 76.9%. About 9.6% of the respondents believed the SFAS 142 changes contributed to the M&A activity. Once again, 3/4 of the respondents that pinpointed the existence of effects, were from financials and IT industries (see Appendix C).

In terms of further comments received for question two, one respondent from utilities industry, safeguarding not being the case for the company, argued that:

> "Contributed. Not specific to our company, but in general it is easier to make the deal accretive if there is no goodwill amortization".

However, a higher number of respondents, 13.4%, supported exactly the opposite. One respondent from the financial industry argued that the changes in SFAS 142 were negative to the M&A activity by stating:

> "Constrained. The organization has become much more sensitive to amount of goodwill a transaction would add to balance sheet. Relationship of goodwill to equity has become a very important step",

while a respondent from a different industry, information technology, pinpointed that

> "Constrained. Similar impact with more valuation allocated to amortizable assets".

These worries, with goodwill recognition and its impact on the financial reporting, corroborate the concerns expressed in evidence collected by Moehrle et al. (2001: 119):

> "As an initial step in this study, we surveyed Chief Financial Officers (CFOs) of each of the firms represented in the treatment and control samples. One questionnaire item requested reasons that the CFOs of pooling firms chose to structure the deal as a pooling. Of the 14 pooling CFOs that responded, 10 (71 percent) indicated that pooling was selected to avoid the drag on earnings. Likewise, the CFOs of purchasing firms were asked why the merger was structured as a purchase. Their responses generally reflected economic and cash flow reasons. In addition, pooling CFOs were 3 times more likely (84 percent vs. 25 percent) to indicate a belief that the market places undue weight on reported earnings for valuation purposes. Thus, anecdotal and survey evidence supports the claim that the preference of many managers for pooling accounting treatment results from a desire to avoid the earnings decrease created by purchase accounting.".

In conclusion, despite a great majority of answers suggesting the neutrality of accounting changes to the M&A activity, there are however dissenting answers. Moreover, some of which were supported by sound argumentation, therefore deserving to be considered.

The third and fourth questions inquired whether companies had withdrawn any planned or announced M&A due to accounting regulations. All the participants declared that they did not face this situation. Some rightly assumed the prevalence of strategy over financial reporting, admitting to cope with accounting issues:

> "To my knowledge, our organization has not withdrawn any planned or assumed M&A deals due to accounting regulations. Our M&A policy/strategy is driven by strategic considerations and once a target is identified, we work within the current accounting guidelines to make the deal most attractive from a GAAP perspective";

while others implicitly conceded that accounting could influence strategic M&A decisions:

> "We try not to let accounting guidelines drive our strategic M&A discussions";

and that ultimately it can obstruct the completion of a M&A deal:

> "Never. But limit opportunities that made it through our".

When queried as to whether the corporation brought forward any M&A deal to try to qualify it for pooling of interests before its elimination, avoiding revised purchase accounting method, effective after July 1, 2001, all respondents asserted that it did not happen, with answers from a straight:

> "Never",

or,

> "Not that I'm aware of",

to another answer referring that the situation was somewhat not applicable to the company as

> "Our preference has always been the purchase method".

There were, however, some elaborated comments:

> "Before 7/1/01, the company completed major acquisitions (...) which were pooling of interests. The new pronouncements clearly has increased asset carrying values, but the oil & gas industry had not had goodwill before 7/1/01 so a fair amount of the asset step up is goodwill now, and has not stopped us from doing future deals.",

and, finally, an interesting quote from a company from the materials industry:

> "None. Even through pooling of interests was enormously preferable to the silly inflated-tech purchase accounting. In any case its the economics that count not the accounting.".

Despite this final comment being made in the fourth question, it relates more to question one. This curious comment contradicts the single comment received for question one, made by a company from the information technology industry, which argued that pooling elimination would limit M&A options. This, perhaps bitter, comment also reveals a certain degree of resentment from a company belonging to the "old" economy against the excessive focus on the hi-tech industry, which by then was catalogued to belong to a kind of fashionable "new e-economy". One thing seems to be evident: the regulatory needs vary among industries, which was also reflected in the comments received.

Finally, question 5 was prepared to assess how the corporations' administrators would classify the relevance and impact of the new accounting rules to the M&A decision-making and overall activity. Only a single comment has been received from an industrial company:

> "No real impact due to accounting rule changes. M&A deals are evaluated on IRR basis and NPV which focuses on cash flows.".

As shown in Fig. 5.4, the majority of the respondents believed both standards had a minor degree of importance.

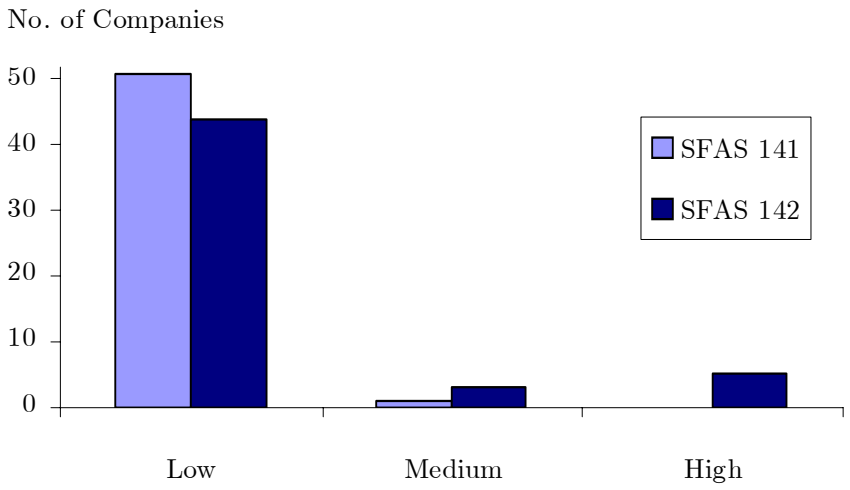

Fig. 5.4 Relevance and impact of the new accounting standards on the M&A decision-making and overall activity

The reduced level of importance is particularly clear for SFAS 141, as only one respondent, from financials industry, attributed a medium importance to the accounting change that resulted in pooling of interests discontinuation. As for SFAS 142, 5 respondents classified the new standard as important, and 3 other found it to have a medium importance. Most of the respondents that pinpointed some degree of importance for SFAS 142 were from financials industry. This evidence suggests that corporate managers perceived the new accounting treatment to purchased goodwill to be more relevant than the elimination of pooling of interests.

crosstabulations and tests of independence for the survey results: Since representatives from the IT and the banking industries were among some of the most active opponents to the business combinations accounting changes, as demonstrated in the literature review made, and as shown in the results of the survey, some statistical testing is justified, in order to try to access whether such evidence has some substance, and is not simply the result of some sparse coincidence.

The testing methodology involved crosstabulations and related tests of independence. The crosstabulation procedure summarises two columns of

attribute data, by constructing a two-way table showing the frequency of occurrence of all unique pairs of values in the two columns, i.e. representing the pairs of variables (StatPoint Inc., 2005). While several statistics can be constructed in order to quantify the degree of association between the columns of data, tests can be run in order to determine whether or not there is a statistically significant dependence between the values from the different columns (StatPoint Inc., 2005). The use of crosstabulations offers several advantages, such as: ease of visualisation and interpretation, allowance of using a large number of statistics, and construct procedure simplicity (vid. e.g. G. M. Phillips, 1995).

In terms of tests of independence, a common question asked when data is organised in two-way tables is whether or not the row and column values are independent (StatPoint Inc., 2005). In the case of this thesis' questionnaire, feedback from questions one and two, effects of SFAS 141 and SFAS 142 respectively, were crosstabulated with IT and financial industries, being the frequencies displayed in tabular form, as shown in Appendix C. Every answer referring that the accounting changes contributed or constrained the M&A activity has been considered as "effect" versus the remaining "no effect" answers. If rows and columns are independent, then the fact that a response is placed in a particular row does not affect the probability of its falling in a given column. In the case of this research questionnaire, for a given crosscorrelation independence, it would be implied that a pinpointed accounting standard effect had no relationship to the fact that the respondent belonged to the financials and/or IT industries.

In terms of tests available, there are many statistics related to crosstabulations, such as Chi-squared, or the Lambda coefficient. Some statistics are suitable to be used when variables are measured at the nominal level, such as the case of Cramer's V, Contingency coefficient, and Phi coefficient; while others, like Gamma test, or Kendall's tau "b" and "c", are to be used when variables are measured at the ordinal level, which is not the case of the variables constructed from questions one and two.

Despite the large amount of statistics available, economists appear to favour Pearson Chi-squared statistic, i.e. the most common Chi-squared test form (Gaughan & Thomas Hodson Jr., 1993; Mansfield, 1986; G. M. Phillips, 1995; Piette, 1992). This preference is unsurprising, as Chi-squared test is overall the most common test for independence in two-way tables (StatPoint Inc., 2005). Chi-squared test, or x^2, compares the observed and expected frequencies, O_{ij} and E_{ij} respectively, for i rows and j columns, by computing:

$$\chi^2 = \sum_{i=1}^{r} \sum_{j=1}^{c} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

In a typical sample differentiation analysis, the crosstabulation analysis is made by using Chi-squared to test the null hypothesis of independence between rows and columns (e.g. Mansfield, 1986; G. M. Phillips, 1995). If the test shows no significant differences, usually measured by a p-value greater than the 5% critical value, then one would not reject the null hypothesis of no differentiation (G. M. Phillips, 1995). Conversely, as Table C.3 and Table C.4 exemplify, when Chi-squared p-value is smaller than 5%, then one can reject the hypothesis of no differentiation, meaning in this case that the answers from a particular industry are linked to a particular pattern of feedback.

There is, however, an issue with Chi-squared: its use may be problematic whenever any cell value has a joint frequency of less than five (Fienberg, 2007), which is the case of all tables, except Table C.6. Therefore, other tests have also been used, namely Pearson's R, which test the strength of relationship of the crosstabulations with values ranging from -1, i.e. perfect negative correlation, to +1, i.e. perfect positive correlation, being zero values an indicator of association absence. Also shown in Appendix C' tables are the Contingency coefficient, and the Cramer's V statistic, which are more suitable to test the strength of association of the cross tabulations when the variables are measured at the nominal level. Their values range from 0, i.e. no relationship, to 1, i.e. the maximum rank possible of association.

In terms of overall results, it is possible to conclude that the FASB's changes were unrelated with to the IT and the financial industries when taken together. There has also been no evidence found suggesting that the effects from the new accounting standards were significant to the respondents from the financial industry. However, the hypotheses that SFAS 141 and SFAS 142 were independent from the IT industry could be rejected at the 95% confidence level, with a certain degree of association between variables, as shown by the Contingency Coefficient, Pearson's R, and Cramer's V tests. This statistical finding needs however to be regarded with some precaution, as only four IT companies answered the questionnaire. In opposition, as 16 financial companies participated in the survey, it seems clearer to admit that the associations of the financial industry's feedback with an accounting standard effect are not strong enough, or at least are not statistically significant.

5.3 Analysis of annual reports

Overall, from a managerial perspective, the results shown previously suggest that the new business combinations accounting standards did not result in significant effects on the M&A activity, despite some indications of a certain degree of impact on IT, and also on the financial industry. Nevertheless, other kind of effects may have been registered, namely on financial reporting. Accordingly, this section examines whether the new business combinations accounting rules had any significant influence on the financial reporting of companies involved in M&A deals. This is arguably a relevant issue because, as examined in earlier chapters, the changes in business combinations accounting generated much controversy as they often lead to significant changes in financial reporting.

Together with the survey, the analysis of financial reporting is indeed important, as it may help to understand how reasonable were the allegations from some industries, such as IT and financials, that the M&A accounting rules

changes would result in economic effects, by negatively impacting the financial reporting of companies interested to be involved in M&A deals, therefore inhibiting companies and resulting in a limitation on the occurrence of M&A deals, with damaging effects for the economy of the USA, as discussed earlier.

5.3.1 Methodology of analysis

The survey methodology has been used in the previous section of this chapter, but in this section the methodology is based on the analysis of financial reports instead. Through the information available on the annual reports of S&P 500 firms, particularly in statements on accounting changes, mostly in the financial statements notes, the effects on financial reporting due to the new business combinations accounting rules were examined. The financial reporting analysis also allowed estimating the impact of the new accounting standards on corporate earnings.

The analysis of the effects on financial reporting is not intended to formally test any hypothesis. The analysis has a simple proposition, which is to verify whether the changes in business combinations accounting resulted in significant impacts on the financial reporting. This statement could be regarded as a testable hypothesis. However, in the present research, not only has it not been taken as a hypothesis, but it has also not been tested by means of any statistical analysis. Therefore, this proposition will only be evaluated by means of qualitative and quantitative analysis of financial reporting data. A part of the quantitative analysis will be cross-sectional.

5.3.2 Data sources

The sample for analysis, shown later, is the result of the congregation of the data collected from financial reports of companies that completed M&A deals in recent years, and that have reported business combinations accounting changes

following the adoption of the new FASB's standards. As for the survey, the companies composing the S&P 500 index, effective after the close of 31 December 2004, were the centrepiece of the study, and therefore data has been collected from these companies' financial reports. S&P 500 index includes firms with large capitalisation values, listed on both New York Stock Exchange (NYSE) and NASDAQ. The fact that these companies were listed enhanced the odds of involvement in M&A deals, as exchange markets ease the concretisation of M&A deals. Nevertheless, as discussed earlier, this fact does not warrant that most companies were neither involved in M&A deals nor affected by the new M&A accounting rules. The list of the companies for which the annual reports were examined is shown in Appendix A.

In the USA, the Form 10-K is an annual filing, which provides a comprehensive overview of the company for the period of a fiscal year. 10-K forms are often included in annual reports, although they are formally prepared to comply with SEC's, and the Securities Exchange Act requirements, while annual reports are primarily focused in investors. Since companies have to report material changes as a result of the adoption of new accounting standards, it is therefore possible to collect data directly from annual reports and 10-K forms.[160] The data for this thesis was collected primarily from the 10-K forms.[161] The *SEC Filings and Forms* (EDGAR), and the *EDGAR Online Pro database*, were the main data sources used. Data from annual reports was also examined in order to collect additional information about some companies. The data sources for annual

[160] In this thesis, "annual report", "Form 10-K", and "annual filling" are interchangeably used.

[161] In some cases, the Form 10-K was not available and the Form 10-K405 was examined instead. Like the Form 10-K, the Form 10-K405 is also a SEC filing, but indicates a file violation resulting from a lack of disclosure of insider trading activities from the reporting company. The identification of the form as 10-K405, versus ordinary 10-K, is made by a company's officer or director, and not by SEC officials. Unsurprisingly, this managerial discretion resulted in inconsistent designations adopted by different companies. Consequently, the SEC's Branch of Public Reference discontinued the requirement to designate a filing as a Form 10-K405, effective after 2002, being 10-K405 forms no longer accepted by the SEC filings system.

reports were *The Annual Reports Service*, from Barron's, and several S&P 500 companies' websites.

5.3.3 Data collection

Since both SFAS 141 and SFAS 142 became effective during 2001, annual reports and 10-K forms have been examined since fiscal year 2001. As exhibited in Appendix A, most companies have a fiscal year-end in 31 December, or by the end of the year, and therefore the changes in business combinations accounting occurred in 2001 were likely to have been disclosed immediately, i.e., from 2002's filings onwards. However, as discussed later in this section, filings up to year 2004 could keep referring to 2001's changes in business combinations accounting.

new business combinations accounting standards disclosures:
Both new business combinations accounting standards contain detailed provisions concerning disclosures on business combinations and on accounting changes, as shown in paragraphs 51 to 58 of SFAS 141 (Financial Accounting Standards Board, 2001a), and in paragraphs 44 to 47 of SFAS 142 (Financial Accounting Standards Board, 2001e). They are mostly to be presented in the notes to the financial statements. SFAS 142 also provides further guidance on disclosures in its Appendix C, by means of illustrations. Much of the impacts measured and reported by the sampled companies were based in such guidance.

An example of financial reporting disclosure on business combinations' new accounting follows for 3M Company. For the year ending in 31 December 2001, 3M Company, registered as Minnesota Mining and Manufacturing Company, filed the Form 10-K405 in 11 March 2002, as required by the Securities Exchange Act of 1934. By standard, every reporting company devoted a section, or specific paragraphs, announcing the enforcement of the new business combinations pronouncements. In the first year of SFAS 141 adoption, 3M Company reported (Item 7, 2002):

> "In June 2001, the Financial Accounting Standards Board issued SFAS No. 141, *Business Combinations*. SFAS No. 141 applies to all business combinations with a closing date after June 30, 2001. The most significant changes made by SFAS No. 141 are: 1) requiring that the purchase method of accounting be used for all business combinations initiated after June 30, 2001, and 2) establishing specific criteria for the recognition of intangible assets separately from goodwill.".

This description configures a commonplace one, as it illustrates the way companies reported the generic changes in business combinations accounting. Overall, companies reported the existence of the new business combinations standard, SFAS 141, but no effects were to be disclosed, as pooling of interest was simply no longer an option. The adoption of SFAS 141 was therefore absolutely neutral from a financial point of view. When referring to both SFAS 141 and SFAS 142, 3M Company states that (Notes to Consolidated Financial Statements, 3M Company, 2002):

> "These standards permit only prospective application of the new accounting; accordingly, adoption of these standards will not affect previously reported 3M financial information.".

Since pooling of interests had been discontinued, no prospective application was therefore possible for SFAS 141. Companies simply informed whether they used pooling method before its elimination. However, a very different scenario was set for SFAS 142.

Like for SFAS 141, companies produced a similar standard description for SFAS 142 (Item 7, 3M Company, 2002):

> "The Financial Accounting Standards Board recently issued Statement No. 142, *Goodwill and Other Intangible Assets*, which will be adopted by the company effective January 1, 2002. Goodwill and intangible assets acquired after June 30, 2001, are subject immediately to the non-amortization and amortization provisions of this statement, while existing goodwill and other

> indefinite-lived assets will no longer be amortized beginning January 1, 2002. Goodwill will be subject to an impairment test at least annually".[162]

However, a more detailed examination on the accounting changes resulting from SFAS 142 adoption is provided in the notes, as shown in the two paragraphs quoted below (Notes to Consolidated Financial Statements, 3M Company, 2002):

> "SFAS No. 142 primarily addresses the accounting for acquired goodwill and intangible assets (i.e., the post-acquisition accounting). The provisions of SFAS No. 142 will be effective for fiscal years beginning after December 15, 2001. The most significant changes made by SFAS No. 142 are: 1) goodwill and indefinite-lived intangible assets will no longer be amortized; 2) goodwill and indefinite-lived intangible assets will be tested for impairment at least annually (...); and 3) the amortization period of intangible assets with finite lives will no longer be limited to 40 years.".

Indeed, further examination of 3M's Form 10-K405 reveals that the focus of business combinations accounting changes is on SFAS 142, as it is clearly assumed that:

> "The principal effect of SFAS No. 142 will be the elimination of goodwill amortization. Amortization of goodwill and indefinite--lived intangible assets in 2001 was $67 million (net income impact of $51 million, or 12 cents per diluted share)".

The paragraph above identifies and illustrates the reported impact that is subject to analysis in this section of the thesis. Since the effects from SFAS 142's adoption are to be measured by the companies, no computation is needed. This is an advantage for the researcher, as the risk of a biased data handling is

[162] According to SFAS 142 (paragraph 43, 2001a), goodwill is the excess of cost of an acquired entity over the net amounts assigned to assets acquired and liabilities assumed in a business combination.

avoided. Any possible computation flaws are therefore responsibility of the reporting companies.

Like most of its peers, 3M Company was amortising goodwill in wide periods, including the maximum amortisation ceiling. As referred to by 3M Company in its annual report notes, in the first quarter of 2001 three notable business combinations were completed using purchase method. The purchased intangible assets, including goodwill, were being amortised on a straight-line basis over several periods, ranging from 4 to 40 years (Notes to Consolidated Financial Statements, 3M Company, 2002). As referred in the last quoted paragraph, if SFAS 142 would be adopted in 2001 the relief in losses as a consequence of the nonamortisation of purchased goodwill would be of $51 million alone for 3M Company. This would result in a significant increase of earnings per share in 2001: from $3.58 to $3.70, a net impact of 12 cents. Although 12 cents in $3.58 stand for *only* a 3.35% increase, evidence collected in this research, and to be examined later in this section, suggests the existence of significant higher possible impacts for most companies in the scope of the adoption of the new business combinations accounting standards.

The positive impact of the elimination of amortisation of acquired goodwill and other intangible assets on earnings was certainly mitigated by the recognition of impairment losses, particularly from companies holding higher figures of purchased goodwill in their balance sheets, also under SFAS 142.[163] However,

[163] Under SFAS 141, business combinations companies are required to estimate the fair value of acquired intangible assets in the following manner: first, intangible assets must be categorised by type, such as customer lists, trademarks, patents, software, intellectual property, etc; second, intangible assets with an identifiable remaining useful life must be separated from those with an indefinite useful life. The latter is then classified as goodwill and must be subject to a two-step test for impairment under FASB 142, which companies were required to adopt by January 1, 2002. However, if goodwill and other intangible assets acquired in a transaction for which the acquisition date is after June 30, 2001, but before the date of fully adoption of SFAS 142, these assets are to be reviewed for impairment in accordance with APB Opinion 17, or with SFAS 121, as appropriate, until the date that SFAS 142 is applied in its entirety (Paragraph 51, Financial Accounting Standards Board, 2001e).

from the analysis of the data collected from annual filings for the period 2002--2003, it has been found that most S&P 500 companies did not recognise impairment charges following SFAS 142 adoption. In the fiscal years 2002 and 2003, at least 126 and 40 companies, respectively, disclosed some type of impaired purchased goodwill and other intangible assets than goodwill under SFAS 142.[164] In the universe of S&P 500 index companies, these impairing companies figures would represent only around 25% and 8% in total, for 2002 and 2003, respectively. As to be shown later in this chapter, considering that 476 companies referred SFAS 142 adoption, these impairment figures would increase slightly only, to 26.4% and 8.4%, respectively.

Despite perhaps not being a significant number of S&P 500 impairing companies, there is, however, enough evidence suggesting that impairment charges were very significant in the first year of the new FASB's standard adoption. Also, according to the evidence collected in the present research for

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Under SFAS 142, the two steps of the goodwill impairment test are (Paragraphs 19-22, Financial Accounting Standards Board, 2001e): first, identifying potential impairments by comparing the fair value of a reporting unit to its carrying amount, including goodwill. Goodwill is not considered impaired as long as the fair value of the unit is greater than its carrying value. The second step is only required if an impairment to goodwill is identified in step one; second, comparing the implied fair market value of goodwill to its carrying amount. If the carrying amount of goodwill exceeds its implied fair market value, an impairment loss is recognized. That loss is equal to the carrying amount of goodwill that is in excess of its implied fair market value, and it must be presented as a separate line item on financial statements.

[164] Evidence is not fully shown due to possible incompleteness and inconsistence of data collection, as S&P 500 companies' disclosures on impairments are somewhat chaotic and surely not clear all times. Indeed, impairment losses may also result of provisions from SFAS 121 and SFAS 144, and many times is not clear whether the recognition of a specific impairment loss is exclusively the result of SFAS 142 adoption. In face of such situation, a conservative view has been adopted, i.e., an impairment value would only be collected if it could be associated to SFAS 142 with a high degree of confidence, and also if it could be reliably measured, in case the impairment value was not clearly identified and disclosed by the reporting company. Due to these constrains, related to the unfeasibility of verification and checking data directly with the S&P500 companies, one cannot ensure completeness of data collected, which therefore can lead to a certain degree of misinterpretation. Therefore, in this thesis the analysis made concerning impairments under SFAS 142 is a brief one.

S&P500 companies, not only did more companies recognise losses in 2002, as the amounts impaired in 2003 decreased significantly - they would represent only about 6% of the 2002 losses.[165] Indeed, according to this thesis, S&P500 companies sample, the amount of gross impairment charges related to SFAS 142 is estimated to be as much as $169.4 thousand millions in the first year of adoption, an astounding figure, that may have exceeded the reported positive effect of nonamortisation of purchased goodwill and other intangible assets, as to be shown in the next section. This finding is consistent with seminal literature on goodwill impairment which found a "big bath earnings management" in the first year of adoption of SFAS 142 (Jordan & Clark, 2004, 2005).

Nevertheless, qualitative evidence collected in the present research suggests that impairment losses may have continued following the "big bath" in the first year of SFAS 142 adoption, in which some massive impairment losses were recorded, as shown by the cases of AOL Time Warner, $98.2 thousand millions, or Clear Channel Communications, with $11.4 thousand millions. For example, in early 2002, Adobe Inc. disclosed that (2002: 36):

> "We are currently evaluating the impact of this Statement on our financial position and are planning to adopt this standard beginning in fiscal year 2003, as required. It is possible that in the future, we may incur less frequent, but larger, impairment charges related to the goodwill already recorded, as well as goodwill arising out of potential future acquisitions.".

Afterwards, Jordan et al. (2007) would admit that the "big bath earnings management" continued throughout 2003 and 2004, a finding consistent with some indications provided by the qualitative evidence collected in the present research from S&P 500 companies' annual filings, as companies' executives suggested the possibility of recognition of further impairment losses.

[165] Ibidem.

Taking once again 3M Company as an example of accounting treatment, the impairment tests procedure under SFAS 142 was described in the following way (Note 1, 3M Company, 2003):

> "Beginning January 1, 2002, goodwill will be tested for impairment annually, and will be tested for impairment between annual tests if an event occurs or circumstances change that would indicate the carrying amount may be impaired. Impairment testing for goodwill is done at a reporting unit level. Reporting units are one level below the business segment level, but can be combined when reporting units within the same segment have similar economic characteristics. 3M, at year-end 2002, had 20 reporting units under the criteria set forth by SFAS No. 142. The vast majority of goodwill relates to and is assigned directly to a specific reporting unit. An impairment loss would generally be recognized when the carrying amount of the reporting unit's net assets exceeds the estimated fair value of the reporting unit. The estimated fair value of a reporting unit is determined using earnings for the reporting unit multiplied by a price/earnings ratio for comparable industry groups, or by using a discounted cash flow analysis.".

Although the accounting procedure for impairment testing seemed to be reasonably well described, and despite the multiple business combinations involving 3M Company in the preceding years, including 9 deals in 2002, no impairment charges were recorded for purchased goodwill in 2002 (Note 1, 3M Company, 2003):

> "The company completed its assessment of any potential impairment upon adoption of this standard and upon its annual assessment and determined that no impairments existed.".

The absence of impairment charges was not an exclusive for purchased goodwill, as it was also extended for other intangible assets with indefinite life, such as patents, tradenames, and others, acquired from an independent party.[166] In none

[166] Below is shown the treatment given by 3M Company to purchased intangible assets with an indefinite life (Note 1, 3M Company, 2003):

of the fiscal years examined, from 2001 to 2004, had 3M Company recorded any impairment loss related to SFAS 142's adoption.

This type of qualitative evidence suggests the "big bath earnings management" could have been even worse in 2002. Perhaps some companies postponed the recognition of losses due to the absence of in-depth guidance regarding the application of impairment tests. It was also an upcoming intense period of accounting regulation changes.[167] Second, conceivably some companies did not have much time to carefully proceed with impairment tests, in order to evaluate any possible impairment losses under SFAS 142. In the case of 3M Company, it

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> "Effective January 1, 2002, with the adoption of SFAS No. 142, intangible assets with an indefinite life, namely certain tradenames, are not amortized. Intangible assets with a definite life are amortized on a straight-line basis with estimated useful lives ranging from 2 to 17 years. Indefinite-lived intangible assets will be tested for impairment annually, and will be tested for impairment between annual tests if an event occurs or circumstances change that would indicate that the carrying amount may be impaired. Intangible assets with a definite life are tested for impairment whenever events or circumstances indicate that a carrying amount of an asset (asset group) may not be recoverable. An impairment loss would be recognized when the carrying amount of an asset exceeds the estimated undiscounted cash flows used in determining the fair value of the asset. The amount of the impairment loss to be recorded is calculated by the excess of the assets carrying value over its fair value. Fair value is generally determined using a discounted cash flow analysis. Costs related to internally developed intangible assets are expensed as incurred.".

[167] The accounting changes in early 2000's were not exclusively from business combinations, as other FASB pronouncements became effective in the same period, such as: SFAS 140, *Accounting for Transfers and Servicing of Financial Assets and Extinguishments of Liabilities a replacement of FASB Statement 125*; SFAS 143, *Accounting for Asset Retirement Obligations*; SFAS 144, *Accounting for the Impairment or Disposal of Long-Lived Assets*, or SFAS 145, *Rescission of FASB Statements No. 4, 44, and 64, Amendment of FASB Statement No. 13, and Technical Corrections*. More accounting standards would be enforced in the upcoming years. Following several scandals that led to major corporate failures, the US Congress passed the Sarbanes-Oxley Act (SOX) of 2002, enacted on 30 July, in order to improve investors' protection from the possibility of fraudulent accounting activities by corporations.

was implicitly admitted that no extensive impairment tests were performed in a first stage of SFAS 142's adoption (Notes, 3M Company, 2002):

> "A preliminary review indicated that no impairment existed at December 31, 2001".

In recent years the literature on goodwill impairment under SFAS 142 has grown substantially. Some literature casted doubts about the superiority of impairment tests over amortisations (vid. Hayn & Hughes, 2006), while other literature suggested that the managerial discretion in applying the goodwill impairment tests reduces the quality of reported earnings (e.g. Massoud and Raiborn, 2003). Nevertheless, the FASB did not change substantially the purchase method format on the years that followed SFAS 142 adoption, and therefore purchased goodwill amortisations seem to have been definitely replaced by impairment tests.

In conclusion, it is seems arguable that the replacement of amortisation of acquired goodwill, and other intangible assets with definite life, by impairment tests may have eased the recognition of impairment losses immediately upon initial adoption of SFAS 142. Indeed, not only the negative economic environment may have propelled the recognition of impairment losses, as also the positive impact from nonamortisation of goodwill and other intangible assets may have also helped impairing companies to dilute the impairments negative impact on corporate earnings.

adoption and disclosure timing of SFAS 142 impacts:

SFAS 142 is the most important of the new business combinations accounting standards for the present research, as the information collected from the annual reports is disclosed under its provisions. It is therefore critical to understand the process of disclosure and adoption of SFAS 142 by the companies in the USA. A brief chronology follows. After FASB issued the new business combinations accounting standards in June 2001, companies become likely to mention that fact immediately after in their annual reports. However, no impacts had to be

measured and disclosed immediately, as companies only needed to compulsorily adopt SFAS 142 provisions from fiscal year 2002 onwards.

Indeed, as SFAS 142 provisions were required to be applied starting with fiscal years beginning after 15 December 2001 (Paragraph 48, Financial Accounting Standards Board, 2001a), and as fiscal year ending in 31 December is the commonest financial reporting period, most S&P 500 companies adopted SFAS 142 immediately in 2002. However, companies with a fiscal year beginning after 31 December 2001 could defer adoption of SFAS 142 for 2003's fiscal year.[168]

Another justification for the immediate adoption of SFAS 142 in 2002 by majority of companies, was that early application was permitted for entities with fiscal years beginning after March 15, 2001, provided that the first interim financial statements would have not been previously issued (Paragraph 48, Financial Accounting Standards Board, 2001a). Finally, it is important to recall that regardless the date of adoption, goodwill and certain intangible assets with an indefinite life acquired after 30 June 2001 would not be amortised, but tested for impairment. This means that in some cases SFAS 142 could have to be implemented in mid-fiscal year. An interesting application example is provided in SFAS 142 (paragraph 50, Financial Accounting Standards Board, 2001e):

> "an entity with a December 31, 2001 fiscal year-end would be required to initially apply the provisions of this Statement on January 1, 2002; if that entity completed a business combination on October 15, 2001, that gave rise to goodwill, it would not amortize the goodwill acquired in that business combination even though it would continue to amortize until January 1, 2002, goodwill that arose from any business combination completed before July 1, 2001. Intangible assets other than goodwill acquired in a business combination or other transaction for which the date

[168] It is important to note that when a fiscal year does not coincide with the calendar year, the calendar year in which the fiscal year ends is used in the shorthand. For example, if a company's fiscal year begins in 1 February 2001, and therefore ends in 31 January 2002, it would be then considered as 2002's fiscal year. This is the case of Wal-Mart Stores Inc., as shown a few paragraphs below.

> of acquisition is after June 30, 2001, shall be amortized or not amortized in accordance with paragraphs 11–14 and 16 of this Statement.”.

In terms of disclosure under SFAS 142 provisions, most companies reported impacts on results for the two fiscal years preceding SFAS 142 adoption. It is important to note that companies did not measure the impact on earnings as a result of SFAS 142 adoption. For the fiscal year of adoption, companies reported the *virtual* impact on previously reported results instead, by means of adjusted results. The majority of the companies adopted SFAS 142 in the fiscal year 2002 and, accordingly, reported impacts for fiscal years 2000 and 2001.

A reduced number of companies did not report SFAS 142 effects for 2000 and 2001, but disclosed impacts for the following fiscal years of 2001 and 2002 only. This was the case of Wal-Mart Stores Inc. As shown in Appendix A, Wal--Mart's fiscal year-end is 31 January.[169] According to the Form 10-K filed by Wal-Mart for the fiscal year ended in 31 January 2002 (2002: 23):

> “We will apply the new rules on accounting for goodwill and other intangible assets beginning in the first quarter of fiscal 2003. Application of the nonamortization provisions of the Statement is expected to result in an increase in net income of approximately

[169] The fiscal years shown in Appendix A were collected from EDGAR Online Pro database during the period 2004-2005, and do not correspond necessarily to the fiscal years exhibited in the annual reports that were examined in this research. For example, as exhibited in Appendix A, the fiscal year for NVIDIA corp. ended on 25 January. This closing date corresponds to the year 2004. However, the fiscal years in the period of analysis were slightly different, as ending dates were 26, 27, and 28 January, for 2003, 2002, and 2001, respectively. These rolling dates are the consequence of the adoption of a fiscal year that ends always on the same day of the week. In this case, some fiscal years will have 52 weeks, while a few others will have 53. Using Cisco Systems to illustrate the adoption of this particular type of fiscal year, the company announced that commencing with fiscal year 1997, the company's fiscal year would be the 52- or 53-week period ending on the last July's Saturday (Cisco Systems, 1998). In 1997, it was a 52--week fiscal year which ended on 26 July 1997. The fiscal 1998 was also a 52-week fiscal year, and therefore ended in 25 July 1998. The fiscal 1999 was however a 53-week fiscal year, in order to match with an ending in the last Saturday of July which, in 1999, corresponded to 31 July.

> $250 million for fiscal 2002. Prior to the completion of the second quarter of fiscal 2003, we will complete a transitional impairment review for goodwill and indefinite lived intangible assets as of the date of adoption. Subsequently, we will perform similar impairment reviews on an annual basis. Management does not believe that the adoption of the impairment review provisions of the statement will have a material effect on the earnings and financial position of the Company.".

It is interesting to observe that not only Wal-Mart supposedly delayed any effective decision on impairment charges under SFAS 142 to 2003's fiscal year, avoiding the so-called "big bath earnings management" occurred in 2002, as it has also reported the impact on results for the first time only in 2002. This was due to the fact that, despite some companies were due to adopt SFAS 142 immediately in 2002, other companies were required to adopt SFAS 142 only in 2003. Indeed, when Wal-Mart filed the Form 10-K for the year ended in January 2002, the new business combinations accounting rules were already enforced, but SFAS 142 adoption was not yet effective, as only for the fiscal year ended in January 2003 was Wal-Mart required to report SFAS 142 effects.

Apart from companies that had to adopt SFAS 142 in the fiscal years 2002 and 2003, there was also the case of companies that could be entitled to adopt the new accounting standard earlier. The earliest adoption possible of SFAS 142 was for companies with a fiscal year beginning in 15 March 2001, i.e., ending in 14 March 2002. However, as stated in SFAS 142 (paragraph 48, Financial Accounting Standards Board, 2001e):

> "In all cases, the provisions of this Statement shall be initially applied at the beginning of a fiscal year. Retroactive application is not permitted.".

Apart some exceptions, not applicable in this case, this provision means that Wal-Mart could only adopt SFAS 142 in its fiscal year beginning in 1 February 2002. It cannot be then argued that Wal-Mart deferred SFAS 142 adoption. As

Wal-Mart could only adopt SFAS 142 in the fiscal year 2003, is has therefore disclosed information on impacts for the fiscal years ending in 2001 and 2002.

For a better understanding of this reasoning, detailed information on SFAS 142 timings of adoption and disclosure follows. Companies with fiscal years beginning between 15 March 2001 and 14 December 2001 could adopt SFAS 142 earlier, provided that the first interim financial statements would have not been previously issued. Since SFAS 142 was to be adopted unrestrictedly only from the fiscal year beginning on 15 December 2001, early adoption can be considered as "optional".

In terms of year of adoption, all companies had to adopt SFAS 142 in the fiscal years 2002 or 2003. Companies with fiscal years ending from 14 March 2002 to 31 December 2002, could have adopted SFAS 142 for 2002's fiscal year. Most of these companies disclosed impacts on precedent reported results for the two preceding fiscal years, i.e., 2000 and 2001. However, some disclosed impacts only for the preceding fiscal year of 2001.

Companies with fiscal years beginning from 2 January 2002 to 14 December 2002, had to adopt SFAS 142, as any deferral would constitute a violation to SFAS 142 implementation provisions. It can be then concluded that all companies had to adopt SFAS 142 at least during fiscal year 2003, in case they had not adopted it earlier. Most of companies that adopted SFAS 142 in the fiscal year 2003 have disclosed impacts on reported results for the two preceding fiscal years, i.e., 2001 and 2002. However, some companies disclosed impacts only for the preceding fiscal year of 2002.

Finally, all companies with fiscal years ending after 13 December 2003 were due to have adopted SFAS 142, as its latest adoption was required for all companies with fiscal years beginning after 14 December 2002. If a company would adopt

SFAS 142 from the fiscal year ending in 14 December 2003 onwards, it would be then violating SFAS 142's adoption provisions.[170]

impact measurement:

Companies reporting under SFAS 142 have disclosed diverse information about the impacts from the nonamortisation of acquired goodwill and indefinitely-lived intangible assets. They have also included supplemental statements of income with information about SFAS 142 impacts on both reported and adjusted bases. The measurement of SFAS 142 impacts on previously reported results, included information about the amount of acquired goodwill and indefinite-lived intangible assets not any longer subject to amortisation, and pro-forma figures for net income (or net losses), had the new accounting standard been in effect for previous fiscal years.

One of the most important figures that companies had to disclose under SFAS 142 was the impact on EPS. As a major indicator of a company's profitability, the EPS assumes particular importance in the USA where it is highly regarded (e.g. Chant, 1980; Larcker, 2003; Marquardt & Wiedman, 2005). In fact, despite the immense variety of indicators used in financial analysis, EPS is still considered a leading indicator for evaluating share prices. For example, Huson et al. (2001) and Core et al. (2002) demonstrated that investors take dilution of

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[170] To summarise, companies with fiscal years beginning between 2 January 2002 and 14 March 2002 could only adopt SFAS 142 in the fiscal year 2003, while companies with fiscal years starting between 15 December 2001 and 1 January 2002 had to adopt SFAS 142 in the fiscal year 2002. Companies with fiscal years beginning between 15 March 2001 and 14 December 2001, and between 15 March 2002 and 14 December 2002, could have adopted SFAS 142 in 2002 or 2003, respectively.

It is therefore possible to make the following generalisation: during the period of adoption of SFAS 142, companies with fiscal years beginning between 2 January and 14 March had to adopt SFAS 142 in the fiscal year 2003, while companies with fiscal years starting between 15 December and 1 January had to adopt SFAS 142 in the fiscal year 2002. Companies with fiscal years beginning between 15 March and 14 December could adopt SFAS 142 in 2002, provided that the first interim financial statements would have not been previously issued; or they could adopt a fiscal year later, in 2003. This generalisation does not apply in case a company had to adopt SFAS 142 during mid-fiscal year, as required by paragraph 50 of SFAS 142.

EPS into account when setting stock prices, while Marquardt & Wiedman (2005) suggest that managers regard diluted EPS as an important performance measure. Overall, literature continues to examine the significant implications for equity valuation from earnings per share (vid. e.g. Gil-Alana & Peláez, 2008).

The FASB requires companies' financial statements to report EPS for each of the major categories of the income statement: continuing operations, discontinued operations, extraordinary items, and net income (Financial Accounting Standards Board, 1997a). In order to ensure the homogeneity of the sample, only comprehensive net income figures were used.

SFAS 128, *Earnings per Share*, specifies the computation, presentation, and disclosure requirements for EPS in the USA (Financial Accounting Standards Board, 1997a). Under SFAS 128, two formats of EPS are required to be reported: basic and diluted. This requirement was also followed in SFAS 142, as shown in its Appendix C (paragraph C5, Financial Accounting Standards Board, 2001e).

Basic EPS is computed by dividing the income available to common stockholders, in the numerator, by the weighted-average number of common shares outstanding, in the denominator (paragraph 8, Financial Accounting Standards Board, 1997a).

The diluted EPS expands on basic EPS by including the effect of all dilutive potential outstanding common shares. Basic and diluted EPS are therefore similarly computed. However, in diluted EPS calculation, the denominator is increased in order to include the number of additional common shares that would have been outstanding if the dilutive potential common shares had been issued (paragraph 11, Financial Accounting Standards Board, 1997a).

Diluted EPS is therefore a more accurate indicator than basic EPS, since it is calculated with regard to the possibility that the holders of dilutive shares exercise their shares' options, therefore providing a more realistic picture of a

company's earnings per share performance. Unsurprisingly, literature found evidence suggesting concerns of corporate executives relating diluted EPS management (vid. e.g. Bensa et al., 2003). Additionally, while some companies did not report SFAS 142 impact on basic EPS, they all have, however, reported the effect on diluted EPS. Therefore, diluted EPS has been taken into account in this research as a proxy for measuring the impact of SFAS 142 on reported earnings.

resume of data collection procedure:

As SEC filings were the main data source, a note on its timing follows. In terms of 10-K and 10-K405 forms, considering they need to be filed up to 3 months after the fiscal year has ended, companies with fiscal years ending from 14 March 2002 to 30 September 2002 were due to have their filings prepared in 2002. As for companies with fiscal years ending between 31 October 2002 and 30 September 2003, the 10-K forms had to be filed until the end of 2003. Finally, companies with fiscal years ending after 31 October 2003 were due to file the 10-K forms only in 2004.

In order to ensure that all companies reporting SFAS 142 effects could be identified, the SEC filings from 2001 to 2004 were examined. Although companies did not adopt SFAS 142 in the fiscal year 2001, the filings were examined in order to analyse earlier disclosures related to the new business combinations standards. This examination was also intended to capture any possible particular or abnormal disclosures. The 2004 filings were also examined, not only to collect information about companies that had to adopt SFAS 142 until the fiscal year ending in 13 December 2003 - which had to file the Form 10-K until in the first quarter of 2004 - ; but also to ensure that companies potentially delayed in reporting on new business combinations accounting could yet be included in the sample.

This additional data verification has been revealed to be important as some early disclosures on SFAS 142 would later be revised by a few reporting companies. Whereas the reported information of a more recent Form 10-K, or

annual report, conflicted with similar information reported in previous years, the newest information has been the one selected for the final sample. Therefore, for most companies, the search for SFAS 142 effects started with the examination of 2004's filings, even knowing in advance that almost all companies reported such effects in 2002 and 2003 filings.

Finally, the examined period of 2001-2004 was fertile in financial reporting restatements, as several companies filed later amendments, using the Form 10--K/A. In some cases, a half dozen of amendments were filed by a single company during the period from 2001 to 2004. It cannot be assured that every amendment filed has been fully verified, despite the confidence that the most relevant documents were checked, as the more substantive amending fillings were examined.

Additionally, despite similarities in financial reporting, some companies reported SFAS 142 effects in slightly different ways, forcing in a few occasions to rely on personal judgement in order to harmonise the information made available in annual reports by every company. It is therefore acknowledged that some data may have been mishandled, despite being examined as carefully as possible. Any inaccuracy from the data collecting process that may be reflected in the annual reports sample is exclusive responsibility of the author of this thesis.

5.3.4 SFAS 142 impacts sample

As discussed before, the sample for analysis is the result of the congregation of data collected from financial reports of companies that completed M&A deals in recent years, and that have reported business combinations accounting changes following the adoption of the new FASB's standards. The annual filings from 2001 to 2004 of the 500 companies that composed the S&P 500 index in 2004 were examined, as this index may be considered to be a suitable proxy for a corporate population, more precisely listed companies, where a significant

portion of the M&A activity is placed. The use of S&P 500 index also ensures a good coverage for the most significant industries in the USA.

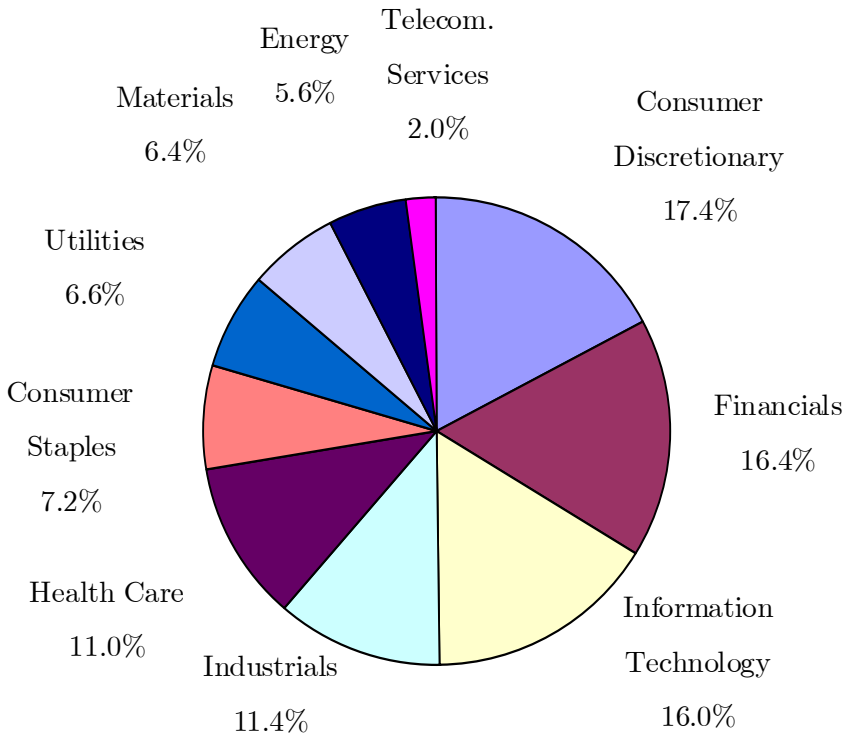

Fig. 5.5 S&P 500 index companies by industry as of 31 December 2004

As shown in Fig. 5.5, the corporate sectors included in S&P 500 index are quite diversified, being a seemingly well-weighted population. By the end of 2004, the financial and IT industries represented about one-third of S&P 500 companies. Together with consumer discretionary companies, IT and financials accounted for half of the companies in the index.

Following the examination of the 500 S&P's companies, it has been found that more than half of the companies disclosed impacts in the scope of the adoption of SFAS 142. More precisely, at least 257 companies measured and disclosed impacts on earnings as if SFAS 142 would have been previously adopted. In addition, another 219 companies referred adoption of SFAS 142, but did not provide any measurement or details of any impact. Some other 4 companies referred the effectiveness of SFAS 142, but did not clarify whether they were

entitled for adoption. In resume, only 24 companies did not assume clearly SFAS 142 adoption.[171]

The majority of the companies disclosed impacts for 2000 and 2001, regardless of different fiscal years' endings. However, as mentioned before, a company with a fiscal year ending between 14 March and 13 December could have adopted SFAS 142 only in 2003. In case of adoption in the fiscal year 2003, it was then natural for a company to report impacts for both 2001 and 2002.[172] As a result of this myriad of possibilities, the sample comprised 257 companies with the following reporting status:

i) 224 companies disclosed information for both fiscal years 2000 and 2001;
ii) 8 companies disclosed information only for fiscal year 2001;
iii) 24 companies disclosed information for both 2001 and 2002; and
iv) 1 company disclosed information only for fiscal year 2002.[173]

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[171] In a more accurate computation, the final sample could be reduced in five observations. Fannie Mae and Freddie Mac could have been excluded due to its "governmental" nature, together with Hospira Inc. and Freescale Semiconductor Inc. which are companies spun off in 2004 from Abbot Labs and Motorola Inc., respectively. Finally, News Corporation was registered in Australia until 2004, and did not file 10-K reports during the period of study. Nevertheless, such elimination would not have any material impact on the figures shown.

[172] However, a few companies disclosing adoption of SFAS 142 in 2003 reported impacts for 2000 and 2001.

[173] A small group of retailers, including Kohl's Corporation, The May Department Stores Company, and The Kroger Co., adopted SFAS 142 in the fiscal year starting on 3 February 2002. According to them, this adoption was made in the fiscal year 2002, and therefore the impacts from SFAS 142 were disclosed for 2000 and 2001. According to the theoretical framework presented in this research, a 2003 fiscal year-end reporting corresponds to the fiscal year 2003, not 2002. This framework matches with the views of the remaining companies in the sample. Therefore, had these retailers followed the standard views on fiscal year definition, and they would have disclosed impacts for the years 2001 and 2002, as if they had adopted SFAS 142 in the fiscal year 2003. As this issue is irrelevant for the constitution of the final sample used in this research, it was decided to keep these companies in the group of companies reporting impacts for 2000 and 2001.

It was justified previously why companies reported SFAS 142 effects in different years. Regardless of the year of reporting, what matters for the present research is the homogenised impact on the two fiscal years preceding SFAS 142 adoption. As the large majority of the companies examined, 224 in 257, reported income figures for 2000 and 2001 together with adjusted pro-forma information as if the accounting change had been already in effect, these two fiscal years were taken as a reference for the final sample. This assumption means that data in the final sample referred to 2001 is a proxy for the impacts on the fiscal year preceding SFAS 142 adoption, i.e. -1 year, regardless the effective year of adoption by the companies. Similarly, sample data for 2000 is a proxy for the impacts on the second fiscal year preceding SFAS 142 adoption, i.e. -2 years.

In order to homogenise the reporting periods in the sample, the data from the company presenting information only to 2002 (iv) was considered as being referred to 2001; while data for the 24 companies that reported impacts for the fiscal years 2001 and 2002 (iii), has been considered as for years 2000 and 2001, respectively. As a result of this standardisation, it is implicit that all companies adopted SFAS 142 in the fiscal year 2002, despite this not being true for 25 of the 257 companies included in the final sample.

The final sample is therefore composed by 257 companies, contributing with 505 observations, 248 for 2000, -2 years, and 257 for 2001, -1 year from adoption. The weight by industries for the 257 companies included in the sample is shown in Fig. 5.6 below.

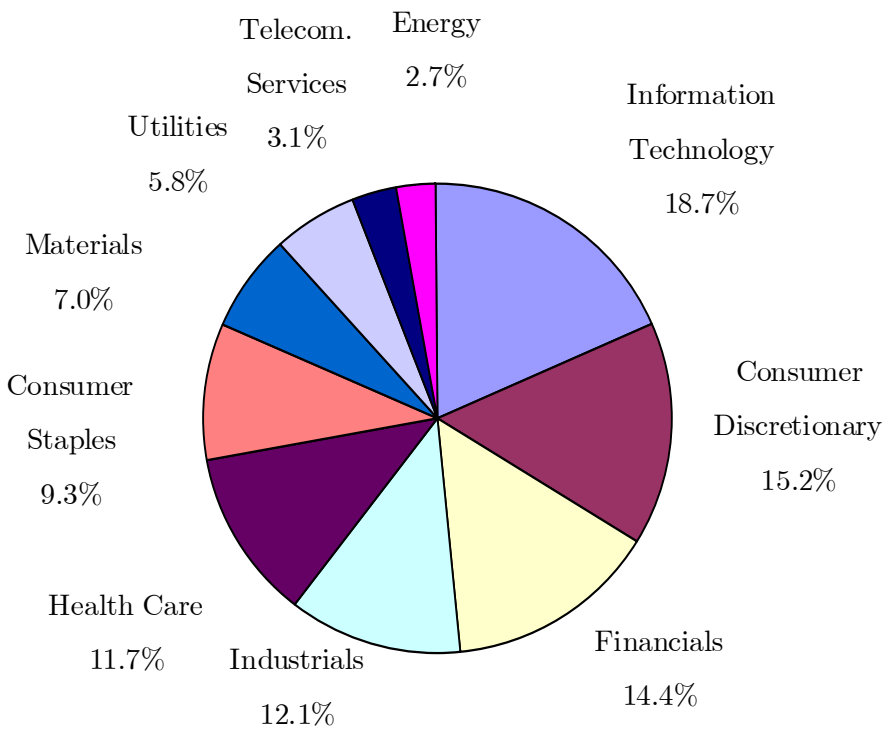

Fig. 5.6 Annual report sample companies by industry

Interestingly, the majority of companies impacted by SFAS 142 were from the IT industry, with 18.7% of the total sample. Financials ranked third, and together with IT and consumer discretionary they sum for around half of the companies in the sample.

5.3.5 Basic descriptive statistics and analysis

In terms of global figures for the sample companies, in 2000, the 248 companies reported an average net income of 890.8 millions in dollars value. On average, had SFAS 142 been made effective in 2000, the same companies would report 962.1 millions of net income, a 7.9% increase. In terms of total values for 2000, the 248 companies reported $220.9 thousand millions of net income and would report an adjusted $238.6 thousand millions had SFAS 142 been adopted, as net amortisation of purchased goodwill totalling $17.2 thousand millions, and amortisation of other purchased intangible assets than goodwill of $471 millions,

would be discontinued, and consequently added back to reported income. Had SFAS 142 been adopted in the fiscal year 2000, and the net income of the 246 companies would be therefore increased in $17.6 thousand millions.

In a similar analysis for 2001, the 257 companies reported an average net income of $407 millions, a 54.3% decrease when compared to 2000. As discussed earlier in this thesis, the economic climate changed in the beginning of the 2000's, so this sharp decrease in earnings can be considered as normal. Had SFAS 142 been made effective in 2001, and the 257 companies would report $541.8 millions of net income on average, a 33.1% increase. In terms of global figures for 2001, the 257 companies reported $104.6 thousand millions of net income, and disclosed a pro-forma net income of $139.2 thousand millions, as net acquired goodwill amortisation of $32.9 thousand millions, and amortisation of $1.65 thousand millions related to other purchased intangible assets than goodwill, such as indefinite-lived tradenames, or workforce intangibles, would be added back. Therefore, had SFAS 142 been adopted in the fiscal year 2001, and the net income of the 257 companies would be increased by one-third. In face of a period of rapidly falling earnings, the immediate adoption in 2001 of SFAS 142 would be certainly welcomed by companies which were amortising purchased goodwill and other intangible assets. If no impairment losses would be recorded, the adoption of SFAS 142, by means of nonamortisation of purchased goodwill and other intangible assets, would represent a *bonus* of $34.6 thousand millions in earnings for the 257 companies examined.

impact on diluted EPS:

Since companies had to disclose the *virtual* impact on EPS for the immediate fiscal years before SFAS 142 adoption, and being EPS a powerful and harmonised indicator, an in-depth analysis focused on diluted EPS follows.

As disclosed pro-forma by 248 companies in 2000, the adjusted diluted net income per share was on average 20.7% superior to the diluted net income as

reported.[174] Had SFAS 142 been adopted in the fiscal year 2001, and the reported net income of the 257 companies examined would increase 29.7% on average.[175]

Some companies reported a zero impact on reported EPS. More precisely, 7 companies in 2000, and 3 in 2001. Had these companies been excluded from the sample, and the average impact of SFAS 142 adoption on diluted EPS would be of 21.3% and 30%, for 2000 and 2001, respectively. On the other hand, even if one would include in the calculations 219 companies that referred SFAS 142 effectiveness but did not provide measurements or details of any possible impact, and if one would consider zero impact values for these companies, the estimated variations would yet be 16% and 11% for -1 and -2 years, respectively.[176] Therefore, one can conclude that the average impacts on diluted EPS are very much meaningful by all means.

The diluted EPS sample median was 7.2% for 2000, and 9.5% for 2001. The high discrepancy of the median versus average, 7.2% vs. 20.7%, and 9.5% vs. 29.7%, suggests the existence of outliers biasing the sample average. The impact

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[174] The change in diluted EPS is expressed as a percentage, and shows the increase in diluted EPS had SFAS 142 being adopted in a previous reporting period. In some cases, the ratio had to be computed using negative values. In order to allow proper computations of impact using negative EPS values, the following formula with absolute values in the denominator has been employed:

$$\frac{reported\ EPS_t - adjusted\ EPS_t}{\left|adjusted\ EPS_t\right|} \times 100$$

[175] The justification for the difference between the % change in diluted EPS and the % change in net earnings, probably lies mostly in the fact that the use of diluted EPS necessarily results in a reduction of basic EPS, whenever the company holds contingent shares. Taking 3M company, for example, in 2001 the increase in diluted EPS from adoption of SFAS 142 would be of 3.35%; while using basic EPS, the positive variation would be of 3.58%. Additionally, EPS values are necessarily disclosed rounded, and therefore may also contribute to increase the cleavage with reported net earnings.

[176] The estimations shown are merely indicative, as there is no clear information whether such 219 companies may have had any impact for any of -1 and -2 years from SFAS 142 adoption.

of companies reporting zero impact is not significant, as revealed by the minor differences between the average percentages for the whole sample versus sample excluded from zero values. Therefore, significant outliers are not lower quartile, but upper quartile values.

Indeed, a substantial number of companies disclosed impressive impacts on diluted EPS, had SFAS 142 been adopted. The maximum impact on diluted EPS reported in 2000 was 4.85 times, or 385%. A total of 10 companies disclosed adjusted diluted EPS with increases of 100% or more. For 5 companies, the impact on reported diluted EPS was at least 200%. The sample standard deviation was 0.47.

Had SFAS 142 been adopted earlier, and the impact on 2001's diluted EPS would be even more expressive. The maximum impact disclosed was 7.6(6) times the reported diluted EPS, an increase of 666%. 12 companies reported impacts of 100% or more, 6 reported increases of at least 200%, and similarly, 4 reported 400%, and 3 other, 500% or more. Unsurprisingly, the dispersion of values was higher than in 2000, and therefore the standard deviation was also higher: 0.77.

A final indication about the significant weight of the outliers follows. For 2000, 49 companies reported differences between adjusted diluted EPS and reported diluted EPS superior to the average of the 248 observations: 20.7%. In 2001, the impact for 52 companies was superior to the average impact for the 257 sampled companies: 29.6%.

5.3.6 Cross-sectional analysis

Since the analysis from the survey suggested the existence of significant effects of the new business combinations accounting standards on the IT industry, and as the sample for annual reports comprises the same 10 main sectors of activity as for the questionnaires' sample, allowing direct data triangulation, it is

therefore of interest to develop a cross-sectional analysis. The cross-sectional data for analysis is shown in Table 5.1 and in Appendix D.

Table 5.1 Estimated SFAS 142 impacts on diluted EPS by industry

	Weighted avg. goodwill and other intang. assets added back ($ millions)[†]		**Average impact on diluted EPS in percentage**		**Weighted avg. impact in pct.**[‡]
	2000	**2001**	**2000**	**2001**	**2000-01**
Consumer Discretionary	51.4	233.3	24.51 (38)	31.15 (39)	27.87
Consumer Staples	91.3	110.1	10.09 (24)	8.55 (24)	9.32
Energy	28.1	32.0	11.97 (7)	19.43 (7)	15.71
Financials	69.2	89.6	18.63 (34)	16.30 (37)	17.41
Health Care	39.1	50.1	30.22 (28)	17.20 (30)	23.48
Industrials	100.7	108.9	28.09 (30)	34.85 (31)	31.53
Information Technology	102.4	239.4	17.80 (47)	66.64 (48)	42.48
Materials	45.7	60.3	31.94 (17)	19.88 (18)	25.74
Telecommunication Services	123.8	151.5	10.43 (8)	18.20 (8)	14.32
Utilities	25.2	51.3	6.29 (15)	12.27 (15)	9.29

(Number of observations in round brackets).

[†] Weighted average from purchased goodwill, and other intangible assets than goodwill averages. The number of observations used for computing the goodwill added back average corresponds to the number of observations used for computing the impact on diluted EPS average. The number of observations used for computing the other intangible assets than goodwill average is not shown.

[‡] Weighted average for 2000 and 2001 average impacts on diluted EPS.

Table 5.1 exhibits the weighted average of purchased goodwill and other intangible assets that would be added back for 2001 and 2000, i.e. -1 and -2 years, had SFAS 142 been adopted. It is possible to observe that companies from industries such as energy, $30.05 millions, utilities, $38.3 millions, and health care, $44.6 millions, have the lowest average amounts of goodwill and other intangible assets; while, conversely, IT, $170.9 millions, consumer discretionary, $142.4 millions, and telecommunication services, $137.6 millions, exhibit the highest amounts, which are significantly expressive for 2001.[177] In fact, the amounts of goodwill and other intangible assets rose for every industry from 2000 to 2001, but this increase was particularly significant for IT and consumer discretionary, the companies from the two industries with the highest average amounts of purchased intangible assets that could be added back under SFAS 142.

In terms of diluted EPS in 2000, utilities recorded the lowest impact, 6.29%. Companies from consumer staples, telecommunication services, and energy, with impacts of a little above 10%, were also in the group of the less possibly impacted by SFAS 142. On the opposite side, materials, 31.94%, health care, 30.22%, and industrials 28.09%, topped the ranking of the industries with the highest impacts.

Overall, impacts on diluted EPS were higher for 2001. Only consumer staples, 8.55%, was below a double-digit figure. Together with utilities, 12.27%, they were the only industries with impacts below 15%. The companies from these 2 sectors were also the ones with the lowest impacts for 2000-2001: 9.32%, and 9.29%, respectively. The highest impacts in 2001 were recorded for IT, 66.64%, industrials, 34.85%, and consumer discretionary, 31.15%. The firms from these 3 industries have also recorded the highest average impacts on diluted EPS for 2000-2001, with 42.48%, 31.53%, and 27.87%, respectively.

[177] Figures shown are weighted averages for 2000-2001 and are not included in Table 5.1, as they are only available in the enclosed Fig. D.1. Vid. Appendix D for cross-sectional analysis figures.

Fig. D.1, shown in Appendix D, compares the 2000-2001 weighted averages for impacts on diluted EPS versus amount of purchased goodwill and other intangible assets to be added back under SFAS 142. Despite one could expect some degree of positive correlation between the average amounts to be added back and the impact on diluted EPS, this is not however clearly evidenced in Fig. D.1.[178] However, it seems indisputable that energy companies and utilities disclosed low values in both categories. Conversely, IT, consumer discretionary, and industrials exhibit high values of goodwill and intangible assets, concurrently with significant impacts on diluted EPS. Additionally, as shown in Fig. D.2, companies of these 3 industries highly impacted by SFAS 142, also present the highest total values of goodwill and other intangibles to be added back. An expected outcome, as IT, consumer discretionary, and industrials, account for the highest average values of intangibles, also accounting for 3 of the 4 industries more represented in the sample.

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[178] This lack of correlation could mean that some companies had a significant proportion of intangible assets with finite useful lives. Indeed, there is an inverse relationship between the proportion of intangible assets with a finite useful life and the impact on diluted EPS as, in opposition to goodwill and other intangible assets with an indefinite useful life, under SFAS 142 they continued to be amortised over their useful lives, but without the constraint of an arbitrary ceiling of 40 years, as required previously by APB Opinion 17 (Summary, SFAS 142, Financial Accounting Standards Board, 2001e) - vid. also Paragraph 16 of SFAS 142 (Financial Accounting Standards Board, 2001e) which defines in detail the conditions for nonamortisation of intangible assets, and paragraphs 11 to 14 which deal with the intangible assets subject to amortisation. Therefore, earnings from companies with larger proportions of intangible assets with definite useful lives, did not benefit significantly from the nonamortisation of goodwill and other intangible assets with indefinite useful lives. However, this reasoning does not apply in this case, as figures only relate to goodwill and other intangible assets that could be added back as a result of SFAS 142 adoption. Consequently, intangible assets with finite useful lives are not considered in the figures, and can not justify the discrepancies between goodwill and intangible assets (with indefinite useful life), and impacts on diluted EPS.
Such discrepancies are probably due to the fact of computations of adjusted results. In 2001, some industries were seriously affected by the economic downturn, and many companies reported net losses. Had SFAS 142 been adopted in 2001 and in many cases the impact on diluted EPS would result in a reverse to net profits. This reversal leveraged the percent increases in diluted EPS figures. It also justifies the existence of additional outliers in the dataset (vid. next footnote).

Considering that the impacts from 2000 and 2001 could be extrapolated for 2002 onwards, seems justifiable to argue that companies from IT, consumer discretionary, and industrials, were the most affected by SFAS 142 adoption. The overall evidence also indicates that IT companies were the most impacted by SFAS 142. Indeed, not only did they exhibit the highest average values of purchased goodwill and other intangibles subject to nonamortisation in 2001, as they were also the ones suffering the most significant impacts on diluted EPS.

Finally, as referred earlier, evidence presented in this section was not subject to formal statistical testing and validation, and therefore needs to be carefully considered. An example of the possible consequences of missing control for statistical assumptions follows. The company with the highest impact on diluted EPS in the sample is from the IT industry, 666% in 2001. Despite the sizeable number of IT companies in the sample, 48 in 2001, had this outlier been removed and the average diluted EPS in 2001 would have decreased from 66.64% to 53.88%. Similarly, the average value of purchased goodwill and other intangibles would decrease from $201.6 millions to $201.4 millions. An insignificant impact in this case, however. Overall, the elimination of this outlier, or unusual observation, does not change fundamentally any of the analyses drawn before. However, since it reduces significantly the impact on diluted EPS, it therefore smoothes the prevalence of IT over the remaining industries in what concerns to SFAS 142 effects.

Other major outliers, e.g. impacts over 200% on diluted EPS in 2000 and 2001, are included in health care, financials, industrials, and IT industries.[179] Although these industries are among the ones with the highest number of observations, the corresponding figures and findings need however to be regarded with due care, particularly for single yearly analyses.

[179] Outliers' threshold set arbitrarily, but certainly corresponding to the upper quartile of any sample when considered at the sub-level of different industries.

Weighted average figures, including both 2000 and 2001, are more robust, as the potential effect from possible outliers is more diluted, providing therefore more reliable analyses. Taking again the IT industry as an example, had the same outlier been removed and, for the period 2000-2001, the weighted average diluted EPS would be reduced from 42.48% to 35.61%, while the weighted average value for goodwill and intangibles added back would have an imperceptible decrease from 144.42 millions to 144.38 millions.

Although not shown, further sensitivity analyses were performed to ensure that the findings presented in this section were not significantly biased, and to minimise the lack of statistical testing and validation of the results obtained.

5.4 Conclusions

In this chapter, diverse evidence collected from S&P 500 companies, by means of a survey and analysis of annual reports, was examined and triangulated, whenever appropriate, in the scope of existing literature review. Following some cross-sectional analysis from both survey and annual report analysis, the overall evidence suggests that, at least, the IT industry may have suffered some significant impacts from the changes in the accounting regulation. Indeed, the concerns from some industries, with a particular relevance for IT and financials, that the new accounting regulation would damage the M&A activity, were made visible in the survey.

Whether such effects were expressive enough to impact M&A activity on IT and other industries is not definitive, as evidence can be regarded as mixed. For example, it was not possible to find a plausible justification for a very low response rate from the IT industry - the lowest from the seven industries that replied to the questionnaire. This apparent missing interest may suggest overall satisfaction with the new business combinations accounting standards. The low percentage of participation in the survey also resulted in a very small sample for

the IT industry, which implicitly subdues the testing made for this industry alone.

From the analysis of 10-K forms and annual reports it was possible to find that the accounting changes produced significant impacts in the financial reporting. The difference between adjusted diluted EPS and reported diluted EPS was 20.7% in 2000, and 29.6% in 2001. These effects are sizeable enough not to be neglectful of. Moreover, such impacts represent billions of dollars in purchased goodwill and other intangible assets not to be amortised that, if not subject to significant impairment losses, mean meaningful earnings increases simply as a result of a technical adjustment, i.e., a change in GAAP. Additionally, such positive impacts were particularly relevant for the IT industry, with a 66.64% increase in diluted EPS in the -1 year of SFAS 142 adoption, and an average 42.48% increase for -1 and -2 years, the highest values among all industries composing the S&P 500 index. This reality is a normal outcome of the fact that IT companies are the ones having the highest values of goodwill in their balance sheets among the entire S&P 500 sample.

Overall, it seems the new M&A accounting policy benefited companies, with a particular emphasis for the ones from the IT industry, and also for other industries, such as or consumer discretionary, or industrials. However, on the other side of the equation, one must not forget that the positive effect of nonamortisation of purchased goodwill and other intangible assets was likely largely outdone by the "big bath" earnings occurred immediately in the first year of SFAS 142 adoption. In the case of the IT industry, the impairment charges in the sample were estimated to be as much as $7.3 thousand millions. Not the highest value among S&P 500 industries, as consumer discretionary estimated value of gross impairment charges are estimated to be some impressive $124.1 thousand millions, with the notable contributes of large losses from Clear Channel Communications, Nordstrom, and Time Warner. It therefore appears that IT firms restrained the recognition of impairment losses during the "big bath" earnings period. Indeed, the $7.3 thousand millions recognised in the first year of adoption, would be largely compensated by the

$11.5 thousand millions resulting from nonamortisation of purchased goodwill and other intangible assets whether SFAS 142 would have been adopted in -1 year.

The impacts of the accounting regulation should not be attended exclusively for the IT industry. For example, consumer discretionary companies recognised massive amounts of impairment losses. But there are other industries largely affected, as the case of industrials, which have similar values of goodwill when compared to the IT industry, and also very significant positive effects on earnings resulting from the nonamortisation of goodwill and other assets.

In conclusion, from 1st July 2001 onwards, firms can no longer avoid the goodwill burden, and events such as the "big bath" earnings of 2002 warned companies about the perils of being involved in M&A deals, particularly when involving large values of purchased goodwill. These worries may also support allegations that the M&A accounting changes could negatively impact the financial reporting of companies accounting for business combinations, possibly inhibiting M&A announcements and the completion of deals, therefore harming the USA economy dynamics. The discussion of the findings triangulation started in this chapter is to be continued in the later chapters of this thesis. Together with evidence brought from previous chapters, the research findings are to be related to existing literature, whenever appropriate.

Chapter 6 Data Collection

6.1 Introduction

In the context of the literature review made in this thesis, together with the subsequent examination of diverse evidence about M&A activity and business combinations accounting, and following the development of the research hypotheses, accompanied by the explication and justification of the methodology for analysis, this chapter shows the data collection procedure, together with the selection of the final samples to be used in the research models, which will be constructed and subject to testing in the next chapter.

There are many M&A data providers and therefore this chapter starts by analysing some different data sources. Based on this analysis, the justification for the selection of a particular M&A database is presented.

Following the selection of the data source of M&A to be used in this thesis, this chapter describes the data selection criteria, which was directed by four main vectors: deal timing, type of deals, deal status, and measure of M&A activity. The criteria adopted for each vector are supported by means of technical definitions from the M&A database, and by the due appropriateness for this research purpose.

Finally, following the presentation of the final samples to be used in the research models, a wide variety of different types of data aggregation used in

M&A literature is shown. The constitution of aggregated sets of data can improve the testing of the research hypotheses, as justified by means of literature review.

6.2 Data sources

Selecting an appropriate dataset is critical when developing research in the M&A field. This is particularly true for studies using long time series, since the inexistence of a continuous, and consistently assembled, time series on the number of M&A deals result in difficulties to researchers (Town, 1992).[180] This need for assembling in order to obtain larger sets of data involves a trade-off with the consistency of the time series (Golbe & White, 1993). In general, the problem is missing information, although sometimes the difficulty is to choose between different sources of data and estimations.[181]

Nowadays, the scenario is different, because there are several reputable companies which track, produce, and publish reliable statistics for M&A, such as Thomson Financial, Mergerstat, Bloomberg, or big accounting and consulting firms, such as KPMG in association with Dealogic. Therefore, assembling and estimating data is no longer an issue. However, selecting a suitable data provider remains a key concern.

Among the different tracking companies, there are two which have produced comprehensive statistics for M&A activity in the USA for many years: Mergerstat and Thomson Financial (henceforth referred as Thomson).[182] Their

[180] Until recently, the most relevant M&A datasets were provided by Nelson, 1895-1920, Thorp, 1919-1939, FTC (U.S. Federal Trade Commission), 1940-1979, and the periodical *Mergers & Acquisitions*, since 1967 (Golbe & White, 1993; Town, 1992; Weston et al., 1990).

[181] For example, the number of industrial consolidations during the first merger wave, 1897--1904, was differently estimated by Moody, Watkins, Thorelli, and Nelson (Banerjee & Eckard, 1998). Golbe and White (1988), present a summary of time series merger data and their limitations.

[182] More recently, Thomson Financial merged with Reuters creating Thomson Reuters.

data is frequently used in research papers and books. Mergerstat produces statistics since 1963.[183] It covers transfers of ownership of at least ten percent of a company's equity, priced at a minimum of US$ 1 million, and involving at least one entity from the USA (Mergerstat, 2003). The other main data provider is Thomson, a company which has expanded its activity in recent years and possesses a wide range of publications and databases directly concerned with M&A activity, such as *Mergers & Acquisitions*, *Acquisitions Monthly, Thomson Deals*, and *SDC Platinum*. Thomson owns data since 1967.[184] Nevertheless, Thomson's main database, SDC Platinum, a former Security Data Company's online database of M&A, only covers deals since 1977 (Thomson Financial, 2006).[185] Both Mergerstat and Thomson collect data for publicly traded, privately owned, and foreign (non-US) companies.

Table 6.1 Summary of some major M&A data sources for the USA

	Mergers & Acquisitions	**SDC Platinum**	**Mergerstat**
Minimum value for tracking	$5 million (lower minimums in the past)	No minimum	$1 million (lower minimums in the past)
Geographical range	U.S.A.	U.S.A. & Global	U.S.A.
Period	Since 1967	Since 1977	Since 1963
Type of deals	M&A and Divestitures	Miscellaneous	M&A and Divestitures

Data sources: Mergerstat (2003), Thomson Financial (2002; 2006).

[183] Early publications by W.T. Grimm.

[184] Early publications by *Mergers & Acquisitions*.

[185] Until the mid-1980's the database only covers a few dozens of transactions which cannot be considered even as a mere sample of the M&A activity. From early 1980's, the coverage appears to be comprehensive, nevertheless, according Pryor (2001), it should be regarded more as a sample. According to Thomson Financial (2006), only after 1990 can the completeness of the data be ensured (Pryor, 2001).

The tracking quality varies from company to company, as also the criteria for classifying the operations, and the methodology for valuating the transactions.[186] Despite some inaccuracies, Mergerstat and Thomson both seem to provide a good coverage and a good quality of information for the period after 1990. Fig. 6.1 shows the evolution of the number and value of net announced M&A deals, according to Mergerstat, and the number and value of completed M&A deals, according to Thomson's SDC Platinum, since 1990.[187] Divestitures, such as sales of corporate units, unit managements buyouts, and minority equity interest purchases (Mergerstat, 2003), are not included.

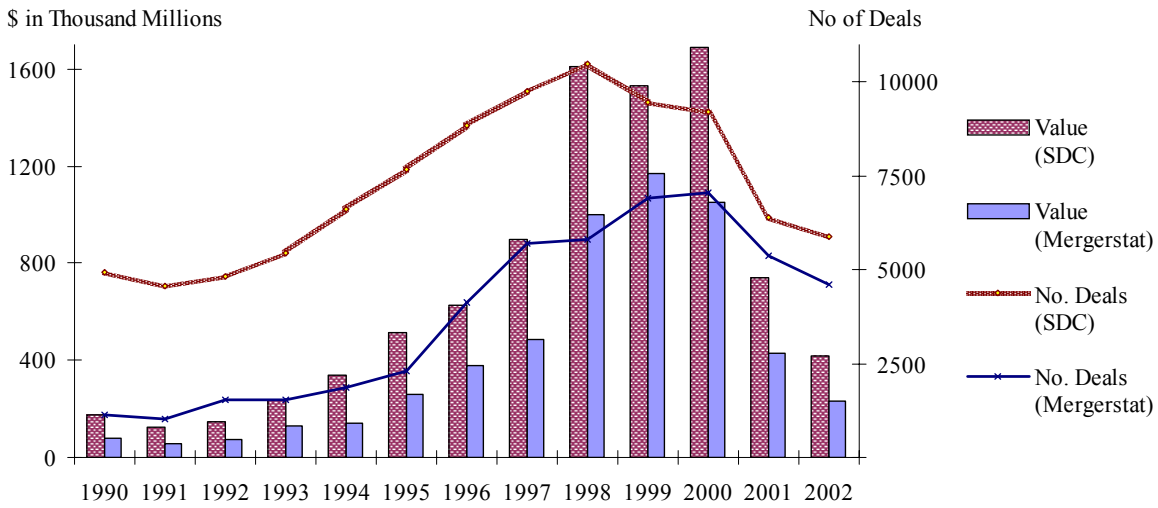

Fig. 6.1 Yearly number and value of M&A deals in the USA, 1990-2002
Data sources: Mergerstat, for Net Announced deals, and SDC Platinum, for Completed deals (Mergerstat, 2001, 2002, 2003; Thomson Financial, 2006).

Undoubtedly, the M&A activity peaked in between 1998 and 2000, the whole triennial being very intense. However, looking more carefully at Fig. 6.1, it is possible to observe that, in terms of the number of deals, the M&A activity peaked differently depending on the database taken into account: roughly in

[186] e.g. whenever payment includes shares, debt, combination, or other than cash, valuation may vary.

[187] "Net announcements" stand for total announcements less cancellations and competing bids (Mergerstat, 2003). Unlike Thomson, Mergerstat does not use the concept of "completed deals".

between 1998 (Thomson Financial, 2006), and 1999-2000 (Mergerstat, 2003). This discrepancy of data is also registered when the peak activity is measured by dollar value: in between around 1999 (Mergerstat, 2003), and 2000 (Thomson Financial, 2006), approximately.

The comparison of Mergerstat's and Thomson's M&A series also allows to conclude that SDC platinum coverage it is significantly superior to Mergerstat. This was expected, since Mergerstat only tracks M&A deals above US$ 1 million. Furthermore, from the literature review made, it is the author's perception that the majority of contemporaneous studies utilise SDC Platinum data (e.g. Harford, 2005; Rhodes-Kropf et al., 2005). Hence, the M&A data from Thomson's SDC Platinum has been selected to the development of the models used in this thesis, as shown in chapter 7.

Additionally, macroeconomic and financial market data for the USA have been collected from different sources. Stock prices indexes, GDP, and interest rates data have been selected from Compustat database, and Datastream; market capitalisation from World Federation of Exchanges; industrial production from the Federal Reserve Board of the USA; and information about financial market holidays, and federal holidays, from NYSE, and the US Office of Personnel Management, respectively.

6.3 M&A data selection

As will be described throughout the remainder of this chapter, there are two main samples to be used in the models development, in chapter 7: one comprising monthly, weekly, and daily data, for the 2000-2002's period; and another one using quarterly data, for the 1994-2008's period.

M&A transactions generally involve complex contours, as a consequence of a myriad of choices and limitations at different levels, namely: financial, strategic, managerial, legal, regulatory, accounting, and fiscal. Diverse information is

available at SDC Platinum about US target enterprises and respective deals, such as: date of announcement and date of completion, status of deal, percentage of shares acquired, value of deal, and target firm value. Thus, it is necessary to sort the relevant M&A data, in order to be possible to test the hypotheses previously formulated. Accordingly, the data selection criteria involve four main vectors, which can be identified as follows:

deal timing:

There are two major moments during the development of an M&A deal. The first one is the announcement date, which is when either acquirer or target firms, alone or together, publicly announce that they hold negotiations, or that they have received a formal M&A proposal. The other is the effectiveness date, which is when the transaction is formally declared completed, or withdrawn.

The date of announcement is a critical issue in the present study, as discussed in chapter 4. In the case of the sample that served to aggregate monthly, weekly, and daily M&A data, the inclusion criteria imply that all deals must have been announced between 2000 and 2002, regardless of the date of effectiveness. This means that deals announced before 2000 are not included at any circumstance, even if they have achieved later completion between 2000 and 2002. Conversely, deals announced during that triennial period, and made effective, i.e. completed, only after the end of 2002, are included. The justification for this procedure relies on the fact that the timing of M&A occurrence corresponds to its announcement, while its effectiveness only matters afterwards, in order to confirm the deal status: completion or cancellation. The same rationale serves for the 1994-2008's sample of quarterly data, by simply replacing 2000 by 1994, and 2002 by 2008.

In order to simplify the terminology used, from this point of the thesis only the expression "announced deals" is to be used, instead of "announced and completed deals". This simplification results from the adoption of the view that any announced deal to be included in the sample must have been effectively completed until 2006, in the case of the 2000-2002's sample; or until 2009, in the

case of the 1994-2008's sample, which is the last time when M&A data in SDC Platinum has been verified.

type of deals:

Being a very comprehensive database, SDC Platinum covers a wide range of operations related with corporate restructurings, such as: Spin-Offs and Equity Carve-Outs, Exchange Offers, Repurchases, Recapitalisations, Self-Tenders, Minority Purchases, Acquisitions of Remaining Interest and Privatisations.[188] As this thesis regards M&A in the strict context of takeover and control exchange, M&A deals tracked by Thomson have been selected only whenever the acquiring firm was purchasing an interest of 50% or over in a target firm, raising its interest from below 50% to above 50%. Successful tender offers and

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[188] Deal types definitions (adapted from Thomson Financial, 2006):
Spin-Offs: a company tax free distribution of shares of a unit, subsidiary, division, or another company's equity, or any portion thereof, to its shareholders;
Recapitalisations: a deal which is a recapitalisation, or a deal which is part of a recapitalisation plan, where the company issues a special one-time dividend in the form of cash, debt securities, preference shares, or assets, while allowing shareholders to retain an equity interest in the company;
Self-Tenders: comprises all deals in which a company announces a self-tender offer, recapitalisation, or exchange offer. In a self-tender offer, a company offers to buy back its equity securities or securities convertible into equity through a tender offer. A company essentially launches a tender offer on itself to buy back shares;
Exchange Offers: a deal where a public company offers to exchange new securities for its outstanding securities;
Repurchases: includes all deals in which a company buys back its shares in the open market, or in privately negotiated transactions, or a deal where a company's board authorises the repurchase of a portion of its shares;
Minority Purchases: contains all deals in which a company is acquiring a minority stake (i.e. up to 49.99% or from 50.1% to 99.9%) in the target company;
Acquisitions of Remaining Interest: embraces all deals in which a company is acquiring the remaining minority stake (i.e. from at least 50.1% ownership to 100% ownership), which it did not already own, in a target company. The acquiring company must have already owned at least 50.1% of the target company and would own 100% of the target company at completion;
Privatisations: a government or government-controlled entity sells shares or assets to a non--government entity.

leveraged buyouts (LBO) have been also included. The justification for this inclusion follows in the next two paragraphs. All other types of deals, as described in footnote number 188, were therefore excluded from the analysis.

Unlike mergers, which are in general friendly agreements between the management of the bidding and target firms, tender offers involve the purchase of shares without the need for approval from the target's Board of Directors. Some tender offers may have the approval of the target management, while, conversely, others may be regarded as being hostile. Thomson understands a tender offer as a formal offer of definite duration made to the equity holders, in order to purchase shares from public company. The offer is often conditioned upon certain requirements, such as a minimum number of shares to be tendered. According to the US Securities and Exchange Commission (2003), a tender offer is a broad solicitation, made for a limited period by a company or a third party, to purchase a substantial percentage of a company's shares or units. The offer is at a fixed price, usually at a premium over the current market price, and is contingent on shareholders tendering a fixed number of their shares or units (Securities and Exchange Commission, 2003). Tender offer rules generally do not apply to bids that result in the ownership of less than five percent.[189] In terms of tender offer characterisation, both Thomson's and SEC's glossaries seem to coincide, which means that SDC Platinum only considers offers resulting in a minimum of five percent in ownership. Because these operations usually involve the purchase of a substantial percentage, generally leading to changes in ownership, tender offers at SDC Platinum database were included.

A LBO occurs when an investor group, investor, or a generic firm, offers to acquire a company, taking on an extraordinarily large amount of debt, with plans to repay it with funds generated from the target company, or with revenue earned by selling off assets from the newly purchased company. Thomson considers a deal to be an LBO, if the investor group includes

[189] Also known as "mini-tender offers". Bidders in mini-tender offers usually limit the offer to below five percent, so that they do not have to comply with many of the investor protections that are in place for larger tender offers (Securities and Exchange Commission, 2000).

management of the target firm, or in case the transaction is identified as such in the financial press and one hundred percent of the company is acquired. Since this type of deals result in a change in the effective control of the companies, they were also included.

deal status:

In terms of deal status, tracking companies, such as Thomson and Mergerstat, can capture the picture of the deal at very different stages, from a mere rumour or intention, up to its completion.[190] The majority of the studies focused on M&A use completed deals (e.g. Conn et al., 2005; Melicher et al., 1983; S. B. Moeller et al., 2005), while a few others employ or refer to announced deals (e.g. Black, 2000a, 2000b; Rhodes-Kropf et al., 2005). Since the main purpose of the present research is to investigate any effects of the FASB changes to the factual M&A activity, the analysis is focused only on announced deals that were effectively completed or withdrawn afterwards. Consequently, the following SDC Platinum's deal status were not selected: rumoured, discontinued rumour, intended, intended acquisition withdrawn, partially completed, seeking buyer,

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[190] Deal Status definitions (adapted from Thomson Financial, 2006):
Completed: the transaction has closed;
Withdrawn: the target or acquirer in the transaction has terminated its agreement, letter of intent, or plans for the acquisition or merger;
Pending: the transaction has been announced but has not been completed or withdrawn;
Partially Completed: the tender offer has been completed, but the actual merger of the two parties has not yet taken place;
Intended: the acquirer has announced that they propose or expect to make an acquisition (generally used for repurchases);
Seeking Buyer: the target company has announced plans to seek out a buyer or buyers for its assets or the company itself;
Seeking Buyer Withdrawn: the target in the transaction has terminated its plans to seek out a buyer or buyers for its assets, shares, or the company itself;
Rumour: reports about a likely transaction have been published in the media, but no formal announcement has been made by either the target or acquirer firms;
Discontinued Rumour: a target company has formally denied the rumour of an acquisition or merger;
Unknown: no definitive, conclusive evidence of the outcome of the deal was available after extensive research.

seeking buyer withdrawn, unknown, and pending. One potential issue is that there is a very large number of pending deals in the period from 2000 to 2002. Indeed, SDC Platinum seems to have failed to follow through about fifteen percent of all announced deals.[191] This situation may configure a deal status misclassification. Despite the possibility of some, or even many, of these pending deals have been completed in the meantime, it has been decided to exclude them, keeping a strict completion criteria, as Thomson was unable to confirm that transaction effectiveness until 2006. Although the deals' status was not comprehensively examined for this larger period of analysis, a similar finding can possibly be drawn for the 1994-2008's sample as, until recently, SDC Platinum database continued to include a considerable number of pending deals (Thomson Financial, 2006).

measure of M&A activity:

Previously, in Fig. 6.1, M&A aggregated data is exhibited in the two available forms: number of transactions and deals' value. Some literature suggests (e.g. Golbe & White, 1988; Scherer & Ross, 1990; Town, 1992), or uses (e.g. Nitzan, 2001), the dollar value of deals as the best measure for M&A activity. However, the majority of studies reviewed adopted the number of deals as a metric for M&A activity (see e.g. Barkoulas et al., 2001; Golbe & White, 1993; Linn & Zhu, 1997; Melicher et al., 1983; Town, 1992).

The use of dollar values raises several issues. It is worth remembering that M&A deal valuations may vary depending on the tracking company criteria, and also on the valuation method used. Nevertheless, Thomson's methodology seems appropriate. According to SDC Platinum, the transaction is valuated by the total value of consideration paid by the acquirer, excluding fees and expenses. The consideration includes the amounts paid for all common shares, common shares equivalents, preference shares, debt, options, assets, warrants, and stake purchases, made within six months of the announcement date.[192] Any

[191] Author's estimation (*data source:* Thomson Financial, 2006).

[192] In the case of common shares, if a portion of the consideration paid uses this mean of payment, the shares are valued using the closing price on the last full trading day prior to the

liabilities assumed are also included only if they are publicly disclosed (Thomson Financial, 2006).

Many deals included in the SDC Platinum database have a disclosed dollar value.[193] Wisely, Town (1992) points out that the real value of merged firms would be the ideal measure of M&A activity, but at the same time he has also identified the potential negative consequences of its use. In fact, one would agree that a M&A deal of thousands of millions dollars cannot be compared in importance with one valued in a few thousands only. However, in the period between 2000 and 2002, more than half of the completed deals have an undisclosed value.[194] Moreover, the deal value is frequently estimated from publicly accessible information, which in general results in an understating of the true value of the transaction, particularly when the negotiations' details are kept undisclosed. This understating error is made visible at SDC Platinum for the years 2000 to 2002: it is possible to compare the value of the deal and target firm value of only a few transactions, but in the majority of the cases the value of the target firm is higher than the value of the deal, an unexpected outcome, since generally M&A involve bid premiums.[195] This suggests the existence of a relevant data bias.

To resume, additionally to the fact that, in most cases, M&A deals are not disclosed, it is also common that M&A deals include other than cash payments (e.g. shares, options, warrants), often resulting in large differences in terms of deal valuations among M&A tracking companies, with significant consequences in terms of accuracy of the databases. Consequently, similarly to most studies in the M&A area, the present research uses exclusively the number of completed deals as being a more reliable M&A activity proxy.

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announcement of the terms of the shares' swap. For public target 100% acquisitions, is used the number of shares existent at the announcement date (Thomson Financial, 2006).
In the case of preference shares, they are only included in the deal value if they are being acquired as part of a 100% acquisition (Thomson Financial, 2006).

[193] Equals total value of consideration paid by the acquirer, excluding fees and expenses.

[194] Author's estimation (*data source:* Thomson Financial, 2006).

[195] Ibidem.

6.4 M&A sample

Following the sample selection procedure for this thesis, a transaction recorded at Thomson's SDC Platinum online database will be included in a sample if it satisfies the following criteria:

(1) The transaction is either a merger, acquisition, LBO, or a tender offer that may lead to a change in the control of the target firm;

(2) The deal was announced during the period from 1 January 1994 until 31 December 2008;[196]

(3) The M&A was successfully completed, or formally withdrawn.

Following these sample selection criteria, in order to construct the main supporting variables for the models that were developed to test the research hypotheses, two main samples were assembled as follows.

sample for the 2000-2002's period:

This sample comprises announced deals involving US target firms during the period between 2000 and 2002. According to SDC Platinum (Thomson Financial, 2006), during this period a total of 24,670 M&A deals, with a disclosed dollar value of 3.15 trillion, were announced. Table 6.2 summarises the sample construction for the 2000-2002's period.

[196] When referring to the sample for the 2000-2002's period, the timing of announcement is, obviously, from 1 January 2000 until 31 December 2002.

Table 6.2 Sample description for the 2000-2002's period

	Deal Status	Number of Deals		Value ($ millions)[a]
2000-2002 announced M&A in the U.S.A.			24,670	3,151,924.6
Less	Intended	(77)		(2,573.2)
	Intended Acquisition Withdrawn	(7)		(1,391.0)
	Partially Completed	(7)		(335.5)
	Discontinued Rumour	(17)		(0.0)
	Rumoured	(54)		(0.0)
	Seeking Buyer Withdrawn	(23)		(0.0)
	Seeking Buyer	(240)		(0.0)
	Pending	(3,581)	(4,006)	(34,981.2)
	Total sample size		**20,664**	**3,112,643.7**
	Completed deals		19,758	2,734,269.7
	Withdrawn deals		906	378,374.0
	Final Sample		**20,664**	**3,112,643.7**

[a]Total deal value, including Net Debt of Target. Total amounts only for deals where value information is available.

Data source: SDC Platinum (Thomson Financial, 2006).

The selection process resulted in the elimination of 4,006 deals, which were either pending, or unconfirmed (intended, rumoured, etc). The value of these exclusions is significantly less important, as it totals about 35 thousand millions of dollars. The final sample consists of 19,758 completed transactions and 906 withdrawn deals, with total dollar values of 2.7 trillion and 0.378 trillion, respectively.

sample for the 1994-2008's period:

Similarly to the process of construction of the 2000-2002's period sample, a larger set of M&A data was collected in order to assemble a sample for the 1994-2008's period. This larger sample is composed by a total of 122,871

completed deals, with a disclosed value above $14 trillion; and a total of 5,017 withdrawn deals, summing almost $2.5 trillion.[197]

Table 6.3 Sample description for the 1994-2008's period

Deal Status	Number of Deals	Value ($ Millions)[a]
Completed deals	122,871	14,414,947.7
Withdrawn deals	5,017	2,409,106.5
Final Sample	**127,888**	**16,824,054.2**

[a]Total deal value, including Net Debt of Target. Total amounts only for deals where value information is available.

Data source: SDC Platinum (Thomson Financial, 2009).

6.5 Data aggregation

There is a wide variety of types of data aggregation in M&A studies. Literature focused on M&A activity tend to use annual and quarterly data, while studies on M&A performance use preferably monthly, weekly, or daily data.

annual and quarterly data:

A substantial number of studies based on M&A determinants, or on the M&A wave pattern, have used annual data. This is not exclusive to seminal studies (e.g. Eis, 1969; Markham, 1955; Weston, 1961), as later works have also relied on annual data (e.g. Golbe & White, 1993; Jovanovic & Rousseau, 2002; Shughart II & Tollison, 1984). The present author believes that the use of annual data is mainly justified by two reasons: limitations on early M&A datasets, and nature of the studies. As mentioned before, early M&A data is, to some extent, flawed, as it suffers from the absence of continuously and consistently assembled time series (Town, 1992). The other main reason that

[197] Tallying in the UK and in Europe to $14.4 billion, and $2.4 billion, respectively.

also justifies the use of annual data, particularly on later studies, is the nature of the studies themselves. In some cases, the use of annual data may be more suitable, accordingly to the methodology adopted.

Nelson's (1959) work has improved the consistency of early M&A data, and allowed the use of quarterly data. Ever since, the use of quarterly data has increased in M&A activity studies (see e.g. Barkoulas et al., 2001; Melicher et al., 1983; Town, 1992).

monthly, weekly, and daily data:

Early literature based on M&A performance, measured by accounting or market returns, tended to use preferably monthly (e.g. Elgers & Clark, 1980; Ellert, 1976; Hong et al., 1978; Langetieg, 1978; Leeth & Borg, 2000; Mandelker, 1974), or, less frequently, weekly returns (Banerjee & Eckard, 1998; M. L. Davis, 1990; Fabozzi et al., 1988), to estimate abnormal returns around the M&A announcement date.[198] More recent studies rather tend to use daily data (e.g. Aktas et al., 2004; Ayers et al., 2002; Bradley et al., 1983; DeLong, 2003; Dodd, 1980; Duggal & Cudd, 1998; Fuller et al., 2002; Hazelkorn et al., 2004; Hubbard & Palia, 1999; Matsusaka, 1993; Mitchell et al., 2004; Moehrle et al., 2001; S. B. Moeller et al., 2005; Rosen, 2006; Weber, 2004), or use simultaneously both monthly and daily returns (see e.g. Norris & Ayres, 2000). Finally, studies on cancelled deals also employ the event study methodology, using weekly (e.g. Fabozzi et al., 1988), or daily returns (see e.g. Bradley et al., 1983; Davidson III et al., 1989; Davidson III et al., 2002; Dodd, 1980).

Several authors argue that monthly data is more consistent than data collected on a daily basis (e.g. Kennedy & Limmack, 1996). This is particularly true for long-term studies. As to the advantages of the use of monthly data over the use of daily data, Fama (1998) and Mitchell & Stafford (2000) point out that: (i)

[198] This sort of literature is not only concerned with accessing returns by itself, this is, computing returns may not be an end itself, but a mean to achieve other findings. For example: the analysis of M&A returns can be used, or related, as for a proxy of M&A activity, or for examining other specific effects, such as impacts from discretional accounting policies.

the average monthly abnormal returns are more likely to match the model of expected returns; and (ii) the distribution of monthly returns is approximated by the normal distribution, allowing classical statistical inference, while daily returns often follow an abnormal distribution (Berry et al., 1990). In addition, Brown & Warner (1985), addressing the issue of the disadvantages of the use of daily data, highlight the (iii) problem of non-synchronous trading; and Blume & Stambaugh (1983) and Conrad & Kaul (1993) also refer to the (iv) potential overstatement of the size of excess returns.

To resume, literature on M&A determinants and on wave pattern uses the number or the value of M&A deals, both announced or completed, and mostly aggregated in annual or quarterly series; while studies based on M&A performance typically use shorter periods: monthly, weekly and, preferably, daily data, despite more possibly challenging from a methodological point of view. Daily M&A returns are easily obtainable from stock market databases, such as Datastream, Compustat, or CRSP, allowing very-short term impact analysis, following the occurrence of M&A announcements.[199]

This thesis' research presents some specific characteristics and objectives, as so does its data aggregation as a consequence of such aims. By analysing the impact of the changes in accounting rules on the M&A activity, this thesis uses M&A completed and withdrawn deals as proxies for the study of M&A activity.[200] Furthermore, by using two main event study' periods, with distinct time spectrums of analysis, one relatively short, only three years, from 1st January 2000 to 31th December 2002; and also a larger one, from 1994 to 2008, this thesis has also considered diverse data aggregations. Likewise, many studies focused on M&A activity and on M&A performance, data was quarterly aggregated for 1994-2008, and aggregated on monthly, weekly, and daily sets, for the 2000-2002's period.

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[199] CRSP database, or Center for Research in Securities Prices, a database administrated by the University of Chicago, Illinois, USA.

[200] Being M&A returns regarded like a proxy for stock prices movements on M&A deals.

The use of daily data is critical to investigate whether the accounting changes resulted in any impacts in the short-term. The use of daily M&A activity also makes sense from a theoretic and methodological point of view, as to be further discussed in chapter 7. The M&A activity is historically important in the USA, and is by far the most active market worldwide, ensuring many thousands of deals per year in recent decades (vid. e.g. Black, 2000a, 2000b; Kummer & Steger, 2008; Muehlfeld et al., 2007). This ensures a regular daily stream of M&A deals in ordinary market conditions in the USA, even when facing a mild economic recession (vid. e.g. Fig. 4.1, Kummer & Steger, 2008). It is a fact that, in the USA, M&A deals are continuously made on a daily basis, just like financial markets are operating during working days, but with the advantage that a company may announce a deal on any non-working day.[201]

Despite the numerous warnings that can be found in literature about the importance of preparing carefully a M&A deal, including a proper ex ante planning (vid. e.g. Reed et al., 2007), the reality is that, besides made on a daily basis, sometimes M&A deals are decided in only a few days time, often neglecting the contextualisation in a long-term strategic view, increasing therefore the odds of a future failure (Kummer & Steger, 2008; S. Moeller & Brady, 2007).

It is also important to bear in mind that announcing a deal is a fair light decision, at least when compared with deciding about a final agreement with the target or merging firms, which can reveal to be complex (Kummer & Steger, 2008). Moreover, short-term strategy is used many times in M&A activity as a quick reaction, which is often critical in order to cope with other competitors and rival companies also interested in the same target or merging companies (Bradley et al., 1983).

Similarly, daily occurrences often change the markets conditions, and may affect decisions concerning M&A deals. As mentioned earlier, M&A activity is highly correlated with some market factors, such as stock prices moves (e.g. Melicher

[201] Even if M&A announcements are unlikely at weekends, as discussed in Chapter 4.

et al., 1983). To illustrate this rationale, an example follows. Subsequently to a takeover bid, it is natural that not only the market price of bidder(s) and target(s) companies react, but that other firms from the same bidder and target industries react as well, based on the speculation that more deals may occur in the industry. Moreover, the market as a whole may be influenced, leading to a 'merger fever', or 'merger mania', that may result in a M&A wave (Gaughan, 2002). Such environment of increasing market movements often instigate rival companies to launch bids that can be decided overnight and formally executed in a few days' time, dismissing any proper planning and valuations, simply because sometimes speed and timing are everything in M&A activity, as M&A actors and advisers are well aware. For example, Bank of America Business Capital (2006) acknowledges it while quoting Beuche (2006):

> "There's been a resurgence of domestic and international mergers and acquisitions activity. With it has come increasing pressure on business development people, investment bankers, accountants and attorneys to get deals done quickly.".

This need for deals to be done quickly is far from new. They are the so-called "quick mergers", i.e. quick M&A agreements that often involve mergers of companies with unrelated businesses, a strand of deals that can be dated from the first great merger movement time (Gaughan, 2007). Examples of "quick mergers" include the acquisition of Capital Cities/ABC Inc. by Walt Disney Co., or AT&T's acquisition of TCI corp., purchased by an exaggerated price, a common consequence in this type of "flashing" operations (Gaughan, 2007).

In the scope of the strategic versus opportunistic M&A deals' issue, another reason that may drive a "thrill of the chase" may simply be the chance of making some fast money (S. Moeller & Brady, 2007). Indeed, M&A announcements may be trigged by market underpricing. As discussed earlier, behavioural M&A research argues that M&A waves occur as a result of temporary stock market misvaluations (e.g. Dong et al., 2006; Rhodes-Kropf et al., 2005; Rhodes-Kropf & Viswanathan, 2004; Shleifer & Vishny, 2003).

Therefore, one may argue that there are many reasons that can lead to "quick mergers", both from theoretic and pragmatic viewpoints.

Finally, following Jensen & Ruback's (1983) seminal paper, most literature using daily data was primarily concerned with measuring M&A returns for bidder and target firms' shareholders, such returns being like a kind of proxy for stock prices movements. The ease and objectivity underlying the CAR-like methodology, made such studies very appealing for researchers, resulting in a very large number of publications. However, as mentioned before, such methodological simplicity is not shared by all literature, as several studies also use daily returns, though not merely to measure impacts on shareholders' wealth. Indeed, as this type of earlier examination, based on pure returns, started to be exhausted, other strands of literature began pursuing different research objectives, leading to the development of the existing methodologies. As examples, it is possible to refer the studies of Ayers et al. (2002), or Norris & Ayres (2000), primarily concerned with the accounting method used, pooling versus purchase; studies concerned with the M&A market regulation, such as the one of Aktas et al. (2004); or studies about merger waves (e.g. Matsusaka, 1993). These studies used returns simply as means to examine several issues related to M&A activity. Also more noteworthy is the study of Branch et al. (2001), which used M&A activity daily data, with a multivariate model, to explore the M&A pattern of activity during the period 1982-1998. It is also noteworthy to refer to the specific "day-of-the-week" effects on the markets, which have been largely examined in literature (vid. e.g. Berument & Kiymaz, 2001; Galai & Kedar-Levy, 2005; M. Gibbons & Hess, 1981).

Accordingly, in order to test hypothesis one, four sets of completed M&A deals were prepared:

(i) Quarterly, 60 quarters, from 1994 to 2008;
(ii) Monthly, 36 months, from 2000 to 2002;
(iii) Weekly, 156 weeks, ibidem; and finally,
(iv) Daily, 1096 days, idem.

Nevertheless, the weekend's inclusion in the models using daily data posed two main questions: firstly, weekends are non-trading days. Their inclusion would therefore result in a mismatch with some independent variables being used in the model using daily data, such as stock prices indexes, for which only weekday data is available. Secondly, from a statistically point of view, weekend days represented undesirable and significant outliers and influential points, producing autocorrelation in the residuals.[202] For these reasons, weekends were eliminated, with the total of daily observations consequently being reduced to 782 weekdays.[203] [204]

For hypothesis two, another two sets of aggregated data of withdrawn M&A deals were arranged:

(v) Quarterly, 60 quarters, from 1994 to 2008; and
(vi) Monthly, 36 months, from 2000 to 2002.

The average number of monthly observations itself is low, around twenty-five withdrawn deals. Consequently, it was not then feasible to test hypothesis two using daily or weekly aggregated data.

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[202] The 2000-2002's study period comprise 314 weekend days, 157 Saturdays and 157 Sundays. Only two thirds of Saturdays had announcements (102), while Sundays were even quieter: 90 Sundays did not have any announcement. A total of 481 deals were announced during weekends, 275 on Saturdays and 206 on Sundays. The average number of announcements during a weekend day was only a deal and a half, while a weekday would produce in average almost twenty-five announcements.

[203] As a consequence, the actual daily sample size was reduced from 19,758 to 19,227 completed deals.

[204] In order to minimise the effect of weekends' elimination, independence hypothesis tests for samples including weekends were conducted. No significant differences between means were found.

6.6 Conclusions

Following an examination of some issues related to existing M&A datasets, it has been found that SDC Platinum (Thomson Financial, 2006, 2009) was a suitable M&A data source, and therefore data from this provider was collected, being organised and structured in two main samples. Together with M&A data, were also presented other sources of economic and financial data. Altogether, this data will be used to test the research hypotheses, by means of quantitative analysis, as shown in the next chapter.

Different sets of data, using quarterly, monthly, weekly, and daily observations, were prepared in order to set the ground for testing the research hypotheses. Issues related to the use of very short-term data aggregations were also discussed, with particular emphasis to the examination of the use of daily data.

In conclusion, six sets of data are to be used for testing in chapter 7, using several models fitted according to the different hypotheses and datasets shown previously in this thesis.

Chapter 7 Models Development and Testing Results

7.1 Summary

This chapter is focused on the development of empirical research, which will serve to test the main research question. Besides a description of the metrics used, this chapter also covers a set of quantitative tests, supported by a statistical analysis of the results obtained. Therefore, it provides critical evidence for the discussion of the research hypotheses. Furthermore, the empirical research shown in this chapter offers additional evidence on M&A activity, and on its pattern, particularly for the period of study.

As discussed earlier, in chapter 4, the research models are designed to test the main hypotheses, and they are not particularly concerned about other possible *sub-findings* that such models' results could provide. This is reflected not only in the approach to the research hypotheses, but also in the manner the empirical research was conducted, as shown throughout this chapter.

An example about the methodological view adopted follows. As shown later in this chapter, an estimation was made about the expected signs for the variables used in the regression models. Since the variables are to be tested, one could hypothesise ex ante as to whether a particular variable should be positively or negatively related with M&A activity, and draw conclusions from the results obtained. To illustrate this possibility, one can argue that it seems consensual that interest rates are negatively correlated with M&A activity. Indeed, if

interest rates are lowering, the M&A activity is supposed to increase, as financing M&A deals becomes cheaper. However, such type of findings is not relevant for the present research, at least when taken individually.[205] Moreover, it is not a very long term study, covering several decades surrounding the event date, and, therefore, it may be acceptable to have variables in the regression models with ex post signs contradicting expected signs, i.e., ex ante. One cannot argue that such contradiction is entirely irrelevant, as a substantial number of ex post opposite variable signs could hint a model misspecification. But, as long as opposite sign results are accidental or justifiable, this possibility will not be regarded as an issue for this research, as it is not intended to draw any other conclusions beside the ones resulting from testing the main hypotheses.

Finally, following the examination of univariate descriptive statistics, the results obtained from testing the main research hypotheses are then subject to discussion, comprising several empirical tests in the context of bivariate and multivariate analysis, model validation, examination of outliers and influential points, and sensitivity analysis.

7.2 Introduction

There are a number of different methodologies, metrics, and techniques that could be used to test the research hypothesis. Nevertheless, literature suggests economic modelling as being a superior one, including the study of effects from economic policy, as proved by the widespread use of econometric models by policy makers (vid. e.g. Hendry & Mizon, 2005; McNown, 1986; Mizon, 2004). This is also suggested for M&A research. Pautler (2001), while referring to a specific M&A case, suggests the superiority of the use of econometric modelling over more simple testing procedures, such as a statistical comparison of group means.

[205] The analysis of results of variables is important as a whole, not individually. This subject matter will be discussed in the final chapters of this thesis.

Similarly, Branch et al. (2001: 9), while developing a M&A "daily model", also noted that "potential relationships can be explored in either a univariate or multivariate context", concluding that it is preferable to choose "the greater completeness of a multivariate model", based on two main reasons:

> "First, a multivariate model removes the impact of the included variables allowing the variable-of-interest (in this case merger activity) to explain only what is otherwise unexplained. Second, somewhat similarly, an extensive multivariate model reduces the risk that the variable-of-interest is acting as a proxy for some other variable. Accordingly, we seek to isolate the overall market impact of merger activity, if any, in a particular framework.".

This thesis pursues similar aims, although seeking to test primarily the impact of the new M&A accounting rules on M&A activity. Therefore, taking into consideration the objectives of this thesis, the use of multiple regression analysis in this thesis seems a valid option. However, the originality offered by the present research question implies the challenge of having to develop models with some degree of novelty. Indeed, despite the several models available in the literature, such as the case of Branch et al. (2001), they are not straightforwardly applicable in this thesis, as they were driven by different purposes. Nevertheless, it is a fact that many existing models do provide relevant contributions and were therefore incorporated in the models developed for this thesis. In fact, it can be argued that the models developed here assemble different parts from other models existing in M&A literature.

Besides Branch et al. (2001), which examined the pattern of M&A activity at daily level, in terms of noteworthy models found in the literature that provided major contributes for this thesis, are the time series models developed by Melicher et al. (1983), and several different autoregressive models, such as the likes of Barkoulas et al. (2001), Shughart II & Tollison (1984), and Town (1992). There are others that have also contributed to the models construction, but more indirectly, such as the case of the time series model of Golbe & White (1988), or the valuation model of Rhodes-Kropf & Viswanathan (2004). Seminal studies, such as the ones of Nelson (1959), and Markham (1955), have also been

considered, but to a very limited degree, mainly to have some additional justification, and supporting evidence during the variables construction stage. Together with other models previously mentioned in this thesis, they support the most relevant decisions made while developing this research. They will continue to be referred to throughout this chapter, whenever considered to be relevant, alongside with other models yet to be introduced in this thesis.

As discussed earlier in this thesis, whenever suitable comprehensive theories and models are missing, the use of a regression-based model may be recommendable, as it may work as a fine predictor.[206] Nevertheless, in order to obtain a valid response from the values of the regressors, it is necessary to prepare a model carefully fitted from a sample large enough. Although models with a few observations appear to have more predictive power, since using small amounts of data means less possible abnormal circumstances introduced in the model, they are more likely to suffer from several methodological issues, which include the possibility of biased results. This is one of the reasons why, besides models based on quarterly, monthly, and weekly data, a model has also been prepared using daily data, since it provides more observations, therefore improving statistical interpretation, and reinforcing the accuracy of the parameter estimates.

The data aggregation used in the current study carries some issues related with the use of time series. Time series include cycle, seasonality, trend, and randomness. Cycles are usually reflected only in larger data aggregation periods,

[206] The methodology adopted here to test the research hypotheses allows to make predictions on the M&A activity evolution. Indeed, any regression model has some intrinsic predictive power by default, regardless to be used or not, regardless being intentionally designed for such purpose or not. However, similarly to Branch et al. (2001: 9), whose modelling purposes were regarded as "explanatory rather than a predictive model", such predictions are not relevant for achieving the research objectives in this thesis, in the sense that it is not important to make projections about the evolution of M&A activity beyond the periods 2000-2002, and 1994-2008. What is relevant is to examine the results within the sample periods. Therefore, such forecasting power will be solely used in order to test the goodness-of-fit of any constructed model, whenever justified.

such as quarterly or yearly ones. In the present study, specific patterns resembling somewhat a cycle-behaviour are to be treated with dummy variables.[207] Seasonality is also to be treated with dummy variables. This leaves trend and randomness. The magnitude of randomness diminishes as the level of aggregation increases. Monthly data is less random than weekly data, as by averaging thirty days more randomness is eliminated than averaging only seven days. Conversely, as randomness decreases the trend included in data become more notorious. In daily data, randomness is more notorious while trend is absent or insignificant (Makridakis et al., 1998: 536). In this case, simple smoothing is preferred to other more complex procedures, such as Holts and Winters's methods, as there are no particular concerns to capture trend effects. Nevertheless, it has been decided to use M&A data as raw as possible to minimise any misrepresentation. Instead of transforming raw M&A data, the use of dummy, adjustment, and lagged variables, was overall preferred in order to deal with trend and randomness.[208] Any remaining trend is to be treated using polynomials.[209]

Following the information revolution, financial markets increased the chances of becoming more efficient, in the sense that more information could be more quickly priced (vid. e.g. Andersen et al., 2007; Gu, 2002; Gu & Finnerty, 2002).[210] Greater efficiency means that markets behave increasingly like random walks. Makridakis et al. (1998) point out that this makes it impossible to

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[207] Dummy variable, or indicator variable, is a binary variable, which assumes value one or zero. There are several purposes for the use of dummy variables, such as to measure qualitative events, or to capture of diverse effects such as seasonality, holiday effects, and interventions (i.e. impacts), among others.

[208] As examples of dependent variables transformations, vid. e.g. later equations (14) and (15).

[209] Polynomials were used in the models using the 2000-2002's sample as they provided a superior fitting. In the case of the 1994-2008's sample, the logarithmic transformation of the dependent variable proved to provide a better fitting for the model used to test hypothesis one; while for the model used to test hypothesis two, a multiple regression model with linear time series was used, as the different fittings tested did not prove beneficial enough.

[210] Nevertheless, the examination of markets' efficiency evolution in recent decades does not provide consensual findings (vid. e.g. Gu & Finnerty, 2002).

predict the turning points using statistical methods. They also note that unpredictable, insignificant events could trigger turning points, just like the 'butterfly effect' in chaos theory, an extreme example, where it is suggested that the air displaced by a flying butterfly in a tropical forest can instigate a major hurricane a week or two later.[211] Additionally, psychological effects are present in business and economics, and they have proved to be highly influential on the markets. Unpredicted sudden raises and crashes are often more related to human behaviour than to business and economic events, making analysts to label this type of behaviour as 'irrational'.

If randomness dominates in a time series, it is possible, then, that a simple random walk model, or other naïve model, will have a predictive power similar to complex explicative models. This may not happen for all M&A markets worldwide, but it is more likely to be true for the US market, which is historically the most dynamic and efficient. Therefore, it is not surprising then that some literature claims that random walk hypothesis describes better the M&A activity (e.g. Chowdhury, 1993; Shughart II & Tollison, 1984), although a number of authors disagree, particularly some who have confirmed the existence of M&A waves (e.g. Golbe & White, 1993; Town, 1992). As described below and in the following section, the present research considers the random walk hypothesis. Nevertheless, due to its specific purposes, it refers to both strands of literature referred above, regardless the viewpoints about random walk hypothesis, as this thesis shares the use of similar methodologies, including the same type of data aggregations and variables. The M&A market certainly has a lower level of efficiency when compared with stock markets - or at least M&A activity tends to be more volatile than some other macroeconomic time series (Blair et al., 1991). Nevertheless, M&A and stock exchange markets are closely bonded and they do share many common characteristics. Moreover, these

[211] Chaos theory is authored by Edward Lorenz, a meteorologist which pioneered studies of atmospheric dynamics in the early 1960's. The "butterfly effect" concept was introduced in 1972, when Lorenz presented a seminal paper before the American Academy for the Advancement of Science in New York, entitled *Predictability: does the flap of a butterfly's wings in Brazil set off a tornado in Texas?*

characteristics become more visible whenever data aggregation is lower, which is the case in the models using the 2000-2002's sample.

The use of a low level of data aggregation leads to an additional issue, concerning the diversity of exogenous explicative factors that can be employed. The number of different types of daily, weekly, and monthly data available and feasible to relate with M&A activity is more limited, which therefore reduces the number of explicative variables that can possibly be considered. For example, GDP data is only available quarterly and the adoption of extrapolation techniques may not be entirely trustworthy. To mitigate the impact of this constraint on the development of the models, the pattern of the M&A activity has been researched in depth, resulting in a relatively higher weight of endogenous explicative factors, as less exogenous variables were available, particularly for the models using daily and weekly data. Nevertheless, as shown throughout this chapter, every possible variable was used whenever possible. It was the case of GDP variable, which has been included not only in the model using quarterly data, but also in the one using monthly data, ensuring this explicative factor to be subject to testing whenever feasible.

Finally, many model-selection methods are available to help with the modelling process. These possibilities include: methods to select models with the highest value of R^2, or highest values of adjusted R^2; stepwise regression; or other measures such as Mallow's C_p statistic, Akaike's Information Criterion (AIC) statistic, and Schwarz Bayesian Information Criterion (BIC), amongst others. These procedures and many other model-selection methods are widely reviewed in the literature (see e.g. Brockwell & Davis, 1996; Draper & Smith, 1981; Hocking, 1976; Judge et al., 1988).

Stepwise regression is a method that makes it possible to select the relevant explanatory variables from a set of candidate variables. This specification procedure includes different approaches, such as stepwise forward regression, or stepwise backward regression (see e.g. Draper & Smith, 1981). The stepwise forward regression method begins with no variables in the model, and then

starts adding statistically significant variables, while the stepwise backward regression method begins with all variables in the model and then starts eliminating lesser significant variables. Both methods have several variations, being its use common in M&A research (e.g. Covin et al., 1997; Pfeffer & Salancik, 2003; C. Yang & Qiu-sheng, 2006).[212]

The use of stepwise regression in this thesis is justified by several main reasons. First, as a consequence of a relatively limited number of explanatory variables available, similar variables were included in the long list of variables that could possibly figure in the final models, being therefore needed to select the most significant variables, in order to avoid multicollinearity. Another justification is that this possibly improves the quality of the models fitting, as stepwise regression considers every variable for the testing procedure, but only includes statistically significant dependent variables in the final versions of the models, therefore increasing the possibility of obtaining models properly validated according to the assumptions of regression analysis. Finally, the use of stepwise regression is also related with the main point of this research: to test whether the 'event' variables have any predictive value in the models. If they do not, then it will mean that the effect of the accounting changes on the M&A activity was not statistically significant.

Among the diverse stepwise approaches available, it has been selected the backward elimination.[213] With the backward elimination procedure, all variables from the long list, which includes the 'event' variables, are initially considered and then subject to potential elimination in case of low statistical significance. In the statistical software package SAS 9.1, the backward elimination procedure starts by calculating the F statistics for a model, including every independent

[212] Stepwise regression should not to be confused with the concept of "stepwise" or "step-wise" procedure, a managerial technique used in M&A due diligence, implementation, and integration.
[213] As any methodology or technique, every statistic has its own drawbacks. For stepwise regression drawbacks see e.g. Stevens (2002).

variable.[214] Then the variables are deleted from the model one by one until every variable remaining in the model produces F statistics significant at the level specified by the user (0.10 level by default). At each step, the variable presenting the smallest contribution to the model is deleted.[215] SAS's procedure is also similarly followed by other statistical software packages (e.g. StatPoint Inc., 2006).

In summary, several models have been developed in order to test the research hypotheses, but under some constraints, such as regarding the number of explanatory variables available to be tested. Considering time as a factor, the models development combined multiple regression with time series. Moreover, the backward selection procedure has been employed, not only with the purpose to assess the potential significance of the event variables; but also to enhance the fitting and validation of the models. This order of priorities is justified by the main objective of the present study, which is to assess the possible effects on M&A activity from the M&A accounting changes, rather than to study in depth other explicative factors, or the trends related to the M&A activity itself. Nevertheless, because a model with enough predictive power is a *sine qua non* condition for validating its outcomes, none of the factors concerning the M&A activity can be simply disregarded, as shown by the examination made in this chapter about the patterns and behaviour of M&A activity.

7.3 Construction of metrics

The models of this thesis have been designed in order to capture the impact of the M&A accounting changes on the number of announced deals and on the level of withdrawn deals. Accordingly, multiple regression with time series was adopted, together with the use of the stepwise procedure as a methodology of

[214] Statistical Analysis System, henceforth referred as SAS 9.1, is a software package copyright of SAS Institute, Inc.

[215] Described procedure adapted from SAS 9.1 "Help and Documentation" (SAS Institute Inc., 2003, 2004).

selection of explanatory variables, as described in the literature by authors such as Makridakis et al. (1998).

The models combine the characteristics of a generic explanatory model, in what concerns the explanatory variables, with time series, where there is an attempt to capture the importance of the time factor over time. Random walk hypothesis is assumed and it is used to address the issue of the non-stationary data. A brief methodological review, broadly supported in Makridakis et al. (1998), but also in other literature as to be referred to, follows.

time series:

The models used in this thesis embrace time series analysis. A time series consists of an ordered sequence of data observed at time intervals often equally spaced. Time series analysis tries to understand the patterns underlying a given time series. It can also be used to make predictions. Time series analysis has been largely used in M&A research, particularly whenever examining the M&A pattern of activity and also its wave pattern of occurrence (see e.g. Barkoulas et al., 2001; Chowdhury, 1993; Golbe & White, 1988, 1993; Guerard, 1985; Melicher et al., 1983).

Unlike cross-sectional regression, where all data is measured at the same time, in a time series regression, data is measured over time. A time series model is a function that relates the value of a time series to previous values of that time series, its prediction errors, or other related time series (Makridakis et al., 1998: 616). Time series data can be decomposed in pattern plus error, which is equivalent to *data = f (trend-cycle, seasonality, error)*. A simple notation such as (1) describes the series X which is indexed by X_n natural numbers.

$$X = \{X_1, X_2, ..., X_n\} \tag{1}$$

random walk:

As mentioned before, the nature of M&A pattern and the data aggregations used in this research make it reasonable to assume random walk hypothesis

(vid. also Chowdhury, 1993; Shughart II & Tollison, 1984). The observation of previously exhibited Fig. 4.1 also helps to corroborate this assumption. The M&A activity presents upward and downward trends that can reverse suddenly, often unpredictably. This pattern resembles stock markets indexes performance and random walk series behaviour. Additionally, the pattern shown in Fig. 4.1 suggests that M&A series in the period of analysis is stationary in the variance, but, conversely, is non-stationary in the mean. The assumption of random walk hypothesis allows to address the issue of the non-stationary data.

A random walk model, for time period t, can be shown as

$$Y_t = Y_{t-1} + \varepsilon_t \tag{2}$$

where:

Y_t is the value of the series for time period t,

Y_{t-1} is the value of the series for time period t-1, and

ε_t is white noise.

autoregression:

Autoregression is a type of regression, but instead of the dependent variable being related to other explanatory variables, it is related to past values of itself at varying time lags (Makridakis et al., 1998: 591). Different types of autoregressive models have been used in M&A literature (vid. e,g. Barkoulas et al., 2001; Melicher et al., 1983; Shughart II & Tollison, 1984; Town, 1992). An autoregressive (AR) model has the form

$$Y_t = b_0 + b_1 Y_{t-1} + b_2 Y_{t-2} + \ldots + b_k Y_{t-p} + e_t \,. \tag{3}$$

Time series models can assume many forms, such as autoregressive (AR) models and moving average (MA) models. Combinations, such as autoregressive moving average (ARMA), and autoregressive integrated moving average (ARIMA) models, were made popular by Box & Jenkins (1970) and are still widely used in

the literature, as other variants as well. An classical ARIMA(*p, d, q*) model can be decomposed by (Makridakis et al., 1998: 336):

AR: p = order of autoregressive part;

I: d = degree of first differencing involved;[216]

MA: q = order of the moving average part.

An autoregressive model of order one can be classified as either an AR(1), or an ARIMA(1,0,0), because there is not any difference involved (I), or MA. From equation (3), if observation Y_t depends on Y_{t-1}, and if the value of the autoregressive coefficient φ_1 is restricted to fluctuate over the interval from -1 to +1, an ARIMA(1,0,0), or AR (1), equation can be written as

$$Y_t = \omega + \varphi_1 Y_{t-1} + e_t \tag{4}$$

If $\varphi_1 = 0$, Y_t is equivalent to a white noise series. White noise is when there is no pattern or whatsoever in the time series. A white noise model can be classified as an ARIMA(0,0,0), because there is not any AR, no difference involved (I), or MA

$$Y_t = \omega + e_t \,. \tag{5}$$

If $\varphi_1 = 1$, Y_t is equivalent to a random walk series

$$Y_t = \omega + Y_{t-1} + e_t \,. \tag{6}$$

In this thesis, the models are constructed following a basic first-order autoregressive model, similarly to Shughart II & Tollison (1984).

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[216] Differenced series is the change between each observation in the original series

$$Y_t^{'} = Y_t - Y_{t-1} \,.$$

The use of differenced series results in *n*-1 observations since it is not possible to compute a difference Y_t' for the first observation.

multiple linear regression:

A multiple linear regression equation, for a model with k explanatory variables, and for time period t, can be represented as

$$Y_t = \beta_0 + \beta_1 X_{1,t} + \beta_2 X_{2,t} + \ldots + \beta_k X_{k,t} + \varepsilon_t \tag{7}$$

where:

Y_t is the dependent variable (also called response variable, or criterion) at time t,

$X_{k,t}$ are the k independent variables (also known as explanatory, or predictor variables) at time t,

β_k are the k regression coefficients (unknown parameters, to be estimated), and

ε_t is the error term, a random variable, at time t.

Multiple regression analysis can be found largely in M&A research, but as most relationships are non-linear, several linearisation procedures are employed. Linearization forms used in this thesis are shown below.

non-linear relationships:

Frequently, the relationship between the response variable and the explanatory variables is not a linear one. Indeed, non-linear functions often explain better these relationships. Besides the linear relationship, other forms of functional relationships connecting the response variable and the explanatory variables are used to fit models, such as polynomials and exponentials.

Polynomial functions are linear in the parameters and can be presented as follows

$$Y_t = \alpha + \beta_1 X_t + \beta_2 X_t^2 + \ldots + \beta_j X_t^j + \varepsilon_t \ , \quad j = 1, \ldots, k \tag{8}$$

where the independent variable X_t is taken from the first power up to the j th power. The equation above, i.e. polynomial functions of k order, can be synthesised as

$$Y_t = \alpha + \sum_{j=1}^{k} \beta_j X_t^j + \varepsilon_t \,. \tag{9}$$

If the model consists only of X_t taken to the first power, then it will be a simple linear regression model, or a first-order polynomial, also referred to as a first--degree polynomial (Lomax, 2007: 407). A second-order polynomial includes X_t taken to the second power, and is commonly referred to as a quadratic model, i.e. a curve with one bend in it rather than a straight line, like in linear models. A quadratic functional relationship, or a second-order polynomial, can be written as

$$Y_t = \alpha + \beta_1 X_t + \beta_2 X_t^2 + \varepsilon_t \,. \tag{10}$$

Likewise the equivalence of equations (8) and (9), equation (10) can be shown to be equivalent to

$$Y_t = \alpha + \sum_{j=1}^{2} \beta_j X_t^j + \varepsilon_t \tag{11}$$

A cubic relationship, or a polynomial of order three, includes X taken to the third power, i.e. a curve with two bends in it. Likewise shown in previous transformations, a third-order polynomial can be written as

$$Y_t = \alpha + \sum_{j=1}^{3} \beta_j X_t^j + \varepsilon_t \,. \tag{12}$$

Further information on polynomial regression models can be obtained in diverse literature, such as in Weisberg (1985), Seber & Wild (1989), or Bates & Watts (1988). Polynomials are normally used in M&A literature with the maximum polynomial order of three (vid. e.g. Barkoulas et al., 2001).

Finally, unlike linear relationships and polynomials, an exponential function is non-linear in the parameters

$$Y_t = e^{\alpha+\beta_1 X_{1,t}+\beta_2 X_{2,t}+...+\beta_k X_{k,t}+\varepsilon_t} . \tag{13}$$

linear transformations using logarithms:

Many non-linear functions can be transformed into linear functions. This can be done using logarithms to form linear models. An example of a linear transformation of a non-linear relationship using logarithms is given by the transformation of the dependent variable Y_t, onto $logZ_t$

$$Z_t = Log\ (\alpha + \beta_1 X_{1,t}^p + \varepsilon_t) . \tag{14}$$

The linearisation of an exponential function, as exhibited in (13), is also possible with a logarithmic transformation of the dependent variable Y_t onto $log_e Z_t$:

$$Z_t = Log_e(\alpha + \beta_1 X_{1,t} + \beta_2 X_{2,t} + ... + \beta_k X_{k,t} + \varepsilon_t) . \tag{15}$$

Several non-linear relationships and linear transformations have been employed in the initial stage of the development of the models. Nevertheless, it has been found that polynomials would provide, in general, better model fittings, given their superior balance between a higher predictive power, and the fulfilment of the required conditions for models validation. There is, however, an exception in the case of the model developed to test hypothesis one using quarterly data, as it has been found that a logarithmic transformation of the dependent variable resulted in a better fitting rather than using polynomials.

To resume, in order to support the testing aims of this thesis, the construction of the models for this research involved assembling different contributions from several models existing in the literature. This process has resulted in the development of models assuming the random walk hypothesis; combining multiple regression with time series analysis; together with the use of first-order

differences; employing polynomials, or a logarithmic transformation of the dependent variable; and, finally, that use stepwise regression for the selection of the most significant variables.

7.4 Statistical models for hypotheses testing

models developed to test hypothesis one:

A set of three models, using monthly, weekly, and daily data, were prepared using the same foundations in order to examine the association between M&A activity and a large set of variables, from which the event ones assume a particular interest. The main model, hereafter called the basic model, for time period t, and with β_j, δ_l, λ_i, ζ_p, and ξ, regression coefficients, can be outlined as

$$MA_t = \alpha + \sum_{j=1}^{3} \beta_j Per_t^j + \sum_{l=1}^{m} \delta_l Exog_{l,t} + \sum_{i=1}^{n} \lambda_i Endog_{i,t} + \sum_{p=1}^{2} \zeta_p Event_{p,t} + \\ + \xi MA_{t-1} + \varepsilon_t \tag{16}$$

where:

MA_t	is the number of M&A deals announced for time period t,
Per_t^j	is the period, or time variable, with $j = 1$ if linear, and with $j = 2$, 3, if quadratic, or cubic, respectively,
$Exog_{l,t}$	are the m exogenous explanatory variables, such as stock market prices, or other economic factors,
$Endog_{i,t}$	are the n endogenous explanatory variables, related to M&A activity and seasonality,
$Event_{p,t}$	are two dummy variables developed to control the impacts on M&A activity from FASB's changes in M&A accounting,
MA_{t-1}	is a lagged variable, which lags the dependent variable MA_t by one period, and
ε_t	is the error term.

As mentioned before, in the case of the model developed to test hypothesis one using quarterly data, the logarithmic transformation of the dependent variable resulted in a better fitting than with the use of polynomials. Therefore, an alternative basic model, supporting a fourth model using quarterly data, has been accordingly fitted as shown below

$$Log\ MA_t = \alpha + \sum_{l=1}^{m} \delta_l Exog_{l,t} + \sum_{i=1}^{n} \lambda_i Endog_{i,t} + \sum_{p=1}^{2} \zeta_p Event_{p,t} + \\ + \xi Log\ MA_{t-1} + \varepsilon_t \tag{17}$$

where:

$Log\ MA_t$ is the logarithm of the quarterly number of M&A deals announced, and

$Log\ MA_{t-1}$ is a lagged variable, which lags by one period the dependent variable $Log\ MA_t$, i.e. the logarithm of the number of M&A deals announced during a quarter.

The alternative basic model, shown in equation (17), resulted in the construction of a model using quarterly data

$$Log\ MA_t = \alpha + \sum_{i=1}^{3} \delta_i Quarter_{i,t} + \sum_{l=1}^{2} \lambda_l SP500_{l,t} + \sum_{m=1}^{2} \zeta_m Fed_{m,t} + \omega\, IP_t + \\ + \phi\, MKTC_t + \gamma\, GDP_t + \varphi\, TD_t + \theta\, Event_t + \xi\, Log\ MA_{t-1} + \varepsilon_t \tag{18}$$

where:

$Quarter_{i,t}$ are three dummy variables representing the quarters of a year, with $i = 1$ to 3, representing the first three quarters of the year, respectively,

$SP500_{l,t}$ are two stock prices index variables, measured by average and closing values of a quarter,

$Fed_{m,t}$ are two interest rates variables, measured by average and last values of a quarter,

IP_t is a quarterly industrial production variable,

$MKTC_t$ is a quarterly market capitalisation variable,

GDP_t	is a quarterly GDP variable,
TD_t	is a variable that accounts for the number of trading days during a quarter, and
$Event_t$	is a dummy variable created to capture the potential effect from FASB's standards.

From the basic model, having equation (16) as a proxy, the model using monthly data can be specified as

$$MA_t = \alpha + \sum_{j=1}^{3} \beta_j Per_t^j + \sum_{i=1}^{11} \delta_i Month_{i,t} + \sum_{l=1}^{2} \lambda_l SP500_{l,t} + \sum_{m=1}^{2} \zeta_m Fed_{m,t} + \omega\, IP_t + \\ + \phi\, MKTC_t + \gamma\, GDP_t + \varphi\, TD_t + \theta\, Event_t + \xi\, MA_{t-1} + \varepsilon_t \tag{19}$$

where:

MA_t	is the monthly number of M&A deals announced,
$Month_{i,t}$	are eleven dummy variables representing the months of a year, with $i = 1$ to 11, representing the months from March to January, respectively,
$SP500_{l,t}$	are two stock prices index variables, measured by average and closing values of a month,
$Fed_{m,t}$	are two interest rates variables, measured by average and last values of a month,
IP_t	is a monthly industrial production variable,
$MKTC_t$	is a monthly market capitalisation variable, and
TD_t	is a variable that accounts for the number of trading days during a month,

while a model using weekly data can be presented as

$$MA_t = \alpha + \sum_{j=1}^{3} \beta_j Per_t^j + \sum_{i=1}^{4} \delta_i Week_{i,t} + \sum_{l=1}^{2} \lambda_l SP500_{l,t} + \sum_{m=1}^{2} \zeta_m Fed_{m,t} + \\ + \phi\, E\_BoM_t + \varphi\, TD_t + \theta\, Event_t + \psi\, Event\_ED_t + \xi\, MA_{t-1} + \varepsilon_t \tag{20}$$

where:

MA_t	is the weekly number of M&A deals announced,
$Week_{i,t}$	are four dummy variables representing the weeks in a month, with $i = 1$ to 4, representing the first four weeks in a month,
$SP500_{l,t}$	are two stock prices index variables, measured by average and closing values of a week,
$Fed_{m,t}$	are two interest rates variables, measured by average and last values of a week,
E_BoM_t	is a dummy variable added to capture calendar and seasonal effects,
TD_t	is a variable that accounts for the number of trading days during a week, and
$Event\_ED_t$	is a dummy variable constructed to capture the potential effect from the ED that preceded FASB's standards.

Finally, a model using daily data can also be estimated as

$$MA_t = \alpha + \sum_{j=1}^{3} \beta_j Per_t^j + \sum_{i=1}^{4} \delta_i Weekday_{i,t} + \lambda\, SP500_t + \zeta\, Fed_t + \varphi\, Hol_t + \\ + \varpi\, HS\_Ext_t + \phi\, E\_BoM_t + \theta\, Event_t + \psi\, Event\_ED_t + \xi\, MA_{t-1} + \varepsilon_t \tag{21}$$

where:

MA_t	is the daily number of M&A deals announced,
$Weekday_{i,t}$	are four dummy variables representing the weekdays, with $i = 1$ to 4, representing Monday to Thursday, respectively,
$SP500_t$	is a stock prices index variable, measured by daily closing values,
Fed_t	is a daily interest rates variable,
Hol_t	is a dummy variable which signals a non-trading day, and
HS_Ext_t	is a dummy variable that captures the impact of reduced trading days, holiday seasons, and extraordinary events.

withdrawn M&A models utilised to test hypothesis two:

Two sets of models, using quarterly and monthly data, have been developed to test hypothesis two. They are outlined similarly to the basic model used to test hypothesis one, as shown before in equation (16). However, as a dependent variable, the models constructed to test hypothesis two use the number of withdrawn M&A deals, instead of the number of announced deals, which, in turn, have been added as an explanatory variable.

Equation (22) replicates the announced M&A deals main model, as shown in equation (16), but does not use polynomials, as it represents a multiple regression model with linear time series

$$\begin{aligned} WITH_t = \alpha + \beta\, Per_t + \sum_{i=1}^{3} \delta_i Quarter_{i,t} + \sum_{l=1}^{2} \lambda_l SP500_{l,t} + \sum_{m=1}^{2} \zeta_m Fed_{m,t} + \omega\, IP_t + \\ + \phi\, MKTC_t + \gamma\, GDP_t + j\, TD_t + \rho\, MA_t + \psi\, Event_t + \xi\, WITH_{t\text{-}1} + \varepsilon_t \end{aligned} \tag{22}$$

where:

$WITH_t$ is the quarterly number of M&A deals withdrawn,

$WITH_{t\text{-}1}$ is a lagged variable, which lags the dependent variable $WITH_t$ by one period, and

MA_t is the quarterly number of M&A deals announced,

while equation (23) replicates the monthly announced M&A deals model, as exhibited in equation (19), but regresses the number of withdrawn M&A deals instead

$$\begin{aligned} WITH_t = \alpha + \sum_{j=1}^{3} \beta_j Per_t^j + \sum_{i=1}^{11} \delta_i Month_{i,t} + \sum_{l=1}^{2} \lambda_l SP500_{l,t} + \sum_{m=1}^{2} \zeta_m Fed_{m,t} + \\ + \phi\, MKTC_t + \gamma\, GDP_t + \omega\, IP_t + \varphi\, TD_t + \rho\, MA_t + \psi\, Event_t + \\ + \xi\, WITH_{t-1} + \varepsilon_t \end{aligned} \tag{23}$$

where:

$WITH_t$ is the monthly number of M&A deals withdrawn.

7.5 Variable definitions and predictions

The process of constructing the variables is drawn largely on the literature on M&A and on the analysis of the M&A pattern during the period of study. This section starts by exhibiting the long list of exogenous explanatory variables constructed, following by the examination of time-related factors and endogenous explanatory variables, such as time, seasonality, trading day variation, and holiday effects; and finishes with the examination of the intervention variables, together with a reference to the use of lagged variables in the models.

dependent variables:

In the present research, the number of announced M&A deals is a proxy for M&A activity, and its pattern, being represented by the dependent variables *MA*, or *Log MA*, a logarithmic transformation of *MA*; while the number of M&A withdrawn deals is represented by the dependent variable *WITH*. Models using *MA* and *Log MA* variables have been conceived to test hypothesis one, while the models using *WITH* variable have been designed to test hypothesis two.

exogenous explanatory variables:

As mentioned earlier, several factors are likely to contribute to the understanding of the pattern of M&A activity. Movements on stock markets prices, interest rates, GDP, and industrial production are exogenous explanatory factors for which there are reliable datasets available and were therefore used in the models whenever feasible (see e.g. Becketti, 1986; Golbe & White, 1988; Melicher et al., 1983; Weston et al., 1990). Information about the long list of exogenous explanatory variables that will be subject to the stepwise backward elimination is as follows.

The S&P 500 Composite index has been selected as a proxy for stock prices indexes. More precisely, has been utilised the S&P 500 Composite – default datatype (PI), which is the default Datastream data type for equity indices.[217] The adoption of this index is justified by its widespread use in literature as a proxy for stock prices index evolution in the USA. Additionally, the use of S&P 500 in this research is also justified since this index has also been previously used in this thesis as a criterion of selection for both survey and annual reports analyses. As a proxy for interest rates, it has been selected the US Federal Funds (effective) – Middle Rate.[218]

In the case of the models using quarterly, monthly, and weekly data, two different views were considered for the variables using stock prices and interest rates. These approaches arose from the possibility of choosing from closing values of the last trading days of the quarter, month, and week, versus using quarterly, monthly, and weekly average values. To avoid any misjudgement, two types of variables were constructed for stock prices and interest rates: one

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[217] According to Datastream, the index is calculated as follows:

I_0 = index value at base date = 100

$$I_t = I_{t-1} * \frac{\sum_{1}^{n}(P_t * N_t)}{\sum_{1}^{n}(P_{t-1} * N_t * f)}$$

Where:

I_t = index value at day t

I_{t-1} = index value on previous working day (of t)

P_t = unadjusted share price on day t

P_{t-1} = unadjusted share price on previous working day (of t)

N_t = number of shares in issue on day t

f = adjustment factor for a capital action occurring on day t

n = number of constituents in index

The summations are performed on the constituents as they exist on day t.

[218] According to Datastream, the federal funds rate is the interest rate at which depository institutions lend balances at the Federal Reserve to other depository institutions overnight. The daily effective federal funds rate is a weighted average of rates on trades through New York brokers. Rates are annualised using a 360-day year or bank interest.

uses closing values, while the other one uses quarterly, monthly, or weekly average values. The two types were therefore included in the initial models, being the selection of the most adequate variables entrusted to the stepwise backward elimination regression procedure.

Other three explanatory variables were employed, but only on the models using quarterly and monthly data:

(i) industrial production, more precisely, the US Federal Reserve Board's industrial production index, which measures the real output of manufacturing, mining, and electric and gas utilities industries. The data provided is seasonally adjusted, and it is available monthly;

(ii) GDP, also seasonally adjusted at annual rates, but with estimates available only quarterly. For the models using monthly data, a monthly interpolation was initially considered, but later withdrawn, since this procedure is not reliable, as experts in general recognise. Nevertheless, the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER), uses monthly estimates to measure cyclical peaks and troughs. However, such peaks and troughs, whenever measured by GDP and GDI (Gross Domestic Income), do not always coincide with the Bureau of Economic Analysis (BEA), an agency of the US Department of Commerce, which is one of the world's leading statistical agencies (vid. e.g. Bureau of Economic Analysis, 2009; Fixler & Grimm, 2008). Furthermore, although BEA publishes quarterly estimates, it does not publish monthly GDP or GDI estimates (Grimm, 2005). Neither does NBER. Instead, NBER uses monthly estimates prepared by Macroeconomic Advisers, a consulting firm, which cannot be considered as authoritative by any means.[219]

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[219] According to the National Bureau of Economic Research (2009):

> "Many of the ingredients of the quarterly GDP figures are published at a monthly frequency by the Bureau of Economic Analysis. Macroeconomic Advisers aggregates them, and then uses a statistical procedure to adjust the monthly estimates for each quarter to make them consistent with the Commerce

Therefore, in monthly data models this variable was kept constant during the term following the latest quarterly GDP value available; and, finally,

(iii) together with the stock prices index variable, a market capitalisation variable was also included. This variable is made from the sum of quarterly, or monthly, market capitalisation of all companies listed at stock markets in the USA: NYSE, NASDAQ, and AMEX.[220]

In terms of variables predictions, there is a broad consensus within the literature about a positive relationship between M&A activity and movements on stock prices (e.g. Beckenstein, 1979; Guerard, 1985; Markham, 1955; R. L. Nelson, 1959; Steiner, 1975), and between M&A activity and business cycle/GDP (e.g. Golbe & White, 1988; R. L. Nelson, 1959; Steiner, 1975; Weston et al., 1990). For industrial production, the majority of literature found a positive relationship with M&A activity (e.g. Gort, 1969; Markham, 1955; Mitchell & Mulherin, 1996), but some found that relationship to be weak (Melicher et al., 1983; R. L. Nelson, 1959), to non-existent (Guerard, 1985; Weston, 1953, 1961). For interest rates, the majority of studies observed a negative relationship (e.g. Becketti, 1986; Golbe & White, 1988; Melicher et al., 1983; Weston et al., 1990), but conversely some authors found a positive relationship (e.g. Beckenstein, 1979), even if a non-significant one (Steiner, 1975).

In respect to the expected signs, positive signs are expected from stock market indexes and capitalisation variables, as well from GDP and industrial production variables. For interest rates, the literature findings are not unanimous, therefore one can admit both positive and negative signs. In this

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Department's official quarterly figure. The monthly GDP numbers are fairly noisy and are subject to considerable revision".

[220] The following abbreviations are used in the models: *SP500* for stock prices index measured by closing values, and *SP500 Av* if measured by average values, *MKTC* for market capitalisation, *Fed* for interest rates measured by end of period values and *Fed Av* if measured by average values, *IP* for industrial production, and *GDP* for gross domestic production.

thesis, for the period 1994-2008, a negative sign would be more expectable, because a decrease on interest rates should theoretically favour M&A activity, as debt becomes more attractive to finance deals. Nevertheless, between 2000 and 2002, the interest rates suffered several major and swift cuts, and the M&A activity decreased. Consequently, during 2000-2002, the M&A activity and interest rates are more likely to be positively related.

time and endogenous explanatory variables:

It has been previously discussed that endogenous factors play an important role in the study of M&A activity (see e.g. Branch et al., 2001; Golbe & White, 1988, 1993; Town, 1992). Similarly, it has also been mentioned that regression models often include linear and higher order polynomials (Makridakis et al., 1998: 610), not being advisable to exceed a cubic relationship (Barkoulas et al., 2001). Regarded as essential to capture the evolution through time of the M&A pattern of activity, time variables were included in the long list of variables. Accordingly, a time variable called period, or *Per*, was added, assuming the serial number of the observation. Together with *Per_2*, and *Per_3*, which equal *Per* squared and *Per* cubic, respectively, the formation of polynomial relationships becomes a possibility.[221] Indeed, the selection of *Per* variable by any model would result in the inclusion of a linear time trend in the regression models, while the selection of *Per_2* and *Per_3* would involve polynomials of order two and three, respectively. Other polynomials of order superior to three were not used to prevent any possible over-fitting of the models, in line with Barkoulas et al. (2001). Only the model employing quarterly data used to test hypothesis one did not include *Per* variables, as a logarithmic transformation was used instead, since it provided a superior fitting. Because the number of

[221] The statistical software packages used in this thesis compute polynomial regressions automatically, but with limitations in terms of options and analysis available, being the most significant the impossibility of combining polynomial regression with stepwise regression. To overcome such limitation, stepwise regression was selected and computed automatically together with the inclusion of numeric time series *Per* variables. More precisely, the period variables were manually introduced in order to have the algebraic equivalent to polynomials, as if computed automatically, being tested together with the remaining explanatory variables using stepwise regressions (vid. e.g. StatPoint Inc., 2005, 2006).

announced and withdrawn M&A deals decreased in the period 2000-2002, and as the number of withdrawn deals has also decreased during the period 1994--2008, negative values are expected for *Per* variables.

An in depth analysis of the movements of M&A activity on a daily basis during the period 2000-2002, based on data collected for this thesis (Thomson Financial, 2006), makes it possible to conclude that stock market's calendar proves to be influential, given that:[222]

(i) announcements are unusual during non-trading days. As mentioned before, in Chapter 4, weekends and holidays are particularly poor in announcements, often with none or with only a single record;[223]

(ii) reduced trading days affect the M&A activity in a negative way. This negative impact may be reinforced in the case of four-day weekends, when trading floors close early on the Monday preceding the holiday placed on a Tuesday; or, on the other hand, when the market closes early on the Friday following a holiday placed on a Thursday;

(iii) holiday seasons also affect negatively the M&A activity. It is the case of Christmas season, which has at least two non-trading days - Christmas Day and New Year's Day - and a possible half-day trading session if Christmas Eve is

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[222] The analysis made from evidence collected in this thesis is often supported by existing literature, as to be referred to throughout this chapter.
Official information about stock markets closures was taken from NYSE's website (New York Stock Exchange, 2006a, 2006b).

[223] In addition to the analysis made earlier, it is important to underline that the variance on the number of announcements is high during non-trading days. The reduction of the number of announcements is generally lower on holidays than at weekends, although specific holidays, such as Thanksgiving Day and Christmas, record a very low activity, being usually zero on Christmas Day. Regarding weekends, announcements are more likely to occur on Saturdays than on Sundays. From a total of 157 weekends, i.e. 314 Saturdays and Sundays, during the period 2000-2002, only 169 days, 102 Saturdays and 67 Sundays, had announced deals.

placed on a weekday. Other possible market special closures may occur in holiday seasons (e.g. a Friday after a Christmas Day placed on a Thursday);

(iv) a concentration of announcements is likely to occur following a holiday placed at the beginning of the week, a long weekend, or a holiday season period. In opposition, that concentration is likely to be brought forward in anticipation of flat calendar periods. For example, a Friday is likely to be busier in M&A announcements if it precedes a long weekend or a holiday season period. Another example is the paradigmatic case of the Thanksgiving Day, which is celebrated on the Thursdays of the last full week of November – in this case M&A activity tends to be anticipated before this very traditional long weekend; and, finally,

(v) unpredictable events may affect the normal markets operation and the M&A activity. It was the case of the terrorist attack on the World Trade Center (WTC). Following the attack, the New York stock markets were closed from 11 to 14 September 2001. One year later, on 11 September 2002, the NYSE opening was delayed until 12:00 noon out of respect for the memorial events commemorating the first anniversary of the attack on the WTC.

To handle the issues brought by the stock market's calendar and events, several actions were taken and new explanatory variables were added to the models. Weekends were removed from the model using daily data, while holidays were kept, but treated instead with a dummy variable *Hol*, which takes value one, if a holiday is a non-trading day, or zero, otherwise. Another dummy variable, *HS_Ext*, was added to the model using daily data to account for the effect of reduced trading days, holiday seasons, and extraordinary events. Finally, an adjustment variable, number of trading days, or *TD*, was added to the models using quarterly, monthly, and weekly data. This categorical variable accounts for the total number of trading sessions during a month or a week. An ordinary trading day accounts for one, while a half-day trading session only totals 0.5.[224]

[224] Instead of using a dummy variable, the adjustment could be done directly in the dependent variables, dividing the number of M&A deals, or withdrawn deals in case of hypothesis two, by

In terms of expected signs, negative signs are expected for *Hol* and *HS_Ext* variables, since they affect negatively the M&A activity, while a positive sign is expected for *TD*, since the number of M&A deals announced and withdrawn is likely to be positively related to the total number of trading days during a week, a month, or a quarter.

Stock markets and M&A activity share interesting seasonal patterns, such as:

(vi) a concentration of announcements is likely to occur on the first days of the month.[225] This tendency to peak may be reinforced whenever a new quarter begins. These patterns are consistent with the 'first-trading-day-of-the-month phenomenon', which consists in a tendency for higher movements in the US stock markets on the first days of the month (Hirsch, 2004: 62) [226], and with the finding that in recent years the first month of a quarter is the most bullish in Dow Jones industrials and S&P 500 (Hirsch, 2004: 74).[227] Typically, the peak of M&A deals occurs on the first trading day of the month. If the first day of the month is a non-trading day, or if a holiday is placed on the first days of the month, the peak may be then brought forward to the last days of the previous month, or may be split between the last and the first days of the month. Since

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the number of trading sessions. However, the trading day dummy variable provided better results than the ones obtained by the adjustment made of the dependent variables. Additionally, the use of a dummy variable has the advantage of avoiding the transformation of the depending variables, keeping therefore M&A data raw in the testing models.

[225] As suggested by evidence collected for the 2000-2002's sample (Thomson Financial, 2006). During this period, the average number of announcements in the first week of the month exceeded the remaining weeks by around 20%.

[226] For example: on the first day of January 2000, a Saturday, 17 deals were announced. This number of announcements is abnormal for a Saturday and can only be justified by a coincidence of positive effects such as the 'end-and-beginning-of-the-month phenomenon', and the beginning of a new quarter which is, cumulatively, the beginning of a new year. On the day after, a Sunday, the M&A activity returned to normal, since not even a single deal was announced, which is a normal condition for a weekend day.

[227] According to Hirsch (2004: 62), from 2 September 1997, to 1 July 2004, the Dow Jones index gained 2711.74 points. During this period, the first day's of each month accounted for a total 3559.06 Dow points, while the remaining 1635 days recorded a total 847.32 negative points.

announcements may occur in both non-trading and trading days, it seems therefore more appropriate to label this positive effect on M&A activity as an 'end-and-beginning-of-the-month phenomenon', since the change of month may take place during a non-trading day, be it a weekend, a holiday, or as a consequence of an extraordinary event.[228] This "turn-of-the-month" pattern can also be found in financial markets and is well documented in behavioural finance literature (e.g. Ariel, 1987; Dickinson & Peterson, 1995; Lakonishok & Smidt, 1988). Indeed, while testing ninety years of daily data on the Dow Jones index, Lakonishok & Smidt (1988: 403) found "evidence of persistently anomalous returns around the turn of the week, around the turn of the month, around the turn of the year, and around holidays". Abnormal returns were found for eight days around the turn of the month, with a particularly high concentration of abnormal movements in the last and in the first three trading days of the month, being this particular period labelled by the authors as a "strong turn of the month effect" (Lakonishok & Smidt, 1988: 417); and,

(vii) the majority of announcements occur in the beginning of the week, while Friday is the weekday with the fewest announcements. This behaviour is also in line with a more recent pattern in stock markets. According to Hirsch (2004: 132), based on S&P 500 index, Monday was the worst trading day of the week, in opposition to Friday, between 1952 and 1989. However, a reversal occurred in 1990, when Monday became consistently the best day of the week for the Dow Jones index, except for 2001 and 2002. Additionally, from 1992 to 2004, the bulk of Dow Jones index gains were made on the first two days of week, while Friday was the worst weekday. This "Monday effect" was also found in the M&A activity. Branch et al. (2001), examined and tested the concentration of M&A announcements on weekdays, using different sets of SDC Platinum data, resulting in evidence supporting the hypothesis that the number of M&A announcements tended to be higher on Mondays, for the period from 1982 to 1998. The analysis of the sample used in this thesis, corroborates the existence

[228] During the period 2000-2002, the average number of announcements in the week that included the turn of the month, outperformed the remaining calendar weeks by an average of 21.2% (Thomson Financial, 2006).

of this effect, in this case for the period of 2000-2002, as the average number of announcements on Mondays exceeded the average number of announcements during the remaining working days by 21.77% (4,212 announcements in 143 days versus 14,876 announcements in the remaining 615 working days).

Furthermore, according to Branch et al. (2001: 6), Tuesday is the second day of the week with more announcements, which is consistent with the view that M&A plans often require a weekend to be finalised, as discussed in chapter 4. Occasionally, M&A deals that are being prepared during the weekends face some unforeseen difficulties that may force to postpone the announcement for Tuesdays. Using the same theory, that weekends are often used to work on finalising M&A deals, it can be consequently argued that Friday tends to be the less active working day, in terms of M&A announcements, as it may signal the beginning of a quieter period for executives to work on final agreements.

Finally, according to Branch et al. (2001) data, Wednesday and Thursday present similar levels of activity, in between a busier start of the week and a quieter Friday.[229] Branch et al. (2001) data is consistent with the sample for 2000-2002 that was used in this thesis. Indeed, Monday accounted for a daily average of 29.4 announcements; Tuesday's, 27; Wednesday's, 24.9; Thursday's, 24.6; and the weakest day, Friday, totalled only an average of 20.4 deals per day.

It is important to mention that effects from seasonality, holidays, trading days' patterns, and other calendar issues, often appear interrelated. Whenever two or more factors occur simultaneously, the effects may result cumulative or dilutive. For example: in year 2000, the 4th of July holiday was celebrated on a Tuesday, which resulted in a four-day weekend, since this holiday is a non-trading day. In this case, much of the 'end-and-beginning-of-the-month phenomenon' was brought forward to the last day of June, a Friday, with 68 announcements, while the first day of July, a Saturday, also had an abnormal activity of 21

[229] Vid. Branch et al. (2001) for a detailed data analysis of M&A announcements during working days for the period 1980-1999.

announcements.[230] These figures are not only justified by the dilution of the 'end-and-beginning-of-the-month phenomenon', but also by the activity of the first two weekdays of July which have been also brought forward. In fact, Monday, 2nd July, which was a half day trading session, has had only fifteen announcements, while the following Tuesday, a holiday and non-trading day, has had merely two announcements. This M&A pattern of activity is also in line with several "day-of-the-week effects" which take place in the stock markets, namely the existence of the "holiday effect", i.e. the occurrence of pre-holiday abnormal activity, even if this effect seems to be diminishing after 1987 (Keef & Roush, 2005); alongside with the so-called "weekend effect", i.e. the tendency for abnormal returns to be concentrated around the turn of the week (Lakonishok & Smidt, 1988).

To handle seasonality, and some of the previously described calendar effects, an *E_BoM* variable, which signals the 'end-and-beginning-of-the-month' phenomenon, was added to the models using weekly and daily data. This dummy variable has value one on the days and weeks whenever the effect is visible, and zero value otherwise. A positive sign is expected for this variable.

Seasonal dummy variables were also included, in all models. These variables assume that the seasonal effect is unchanged year after year. Variables representing quarters, months, weeks, and weekdays, were added to the different models, exploring the possible existence seasonal patterns in data, such as the abnormal "Monday effect" on M&A activity and on the financial markets (e.g. Branch et al., 2001), the around the "turn of the year effect" (Lakonishok & Smidt, 1988), the "January effect" (Haugen & Jorion, 1996; Keim, 1983), or simply specific "ordinary-day-of-the-week" effects (vid. e.g. Berument & Kiymaz, 2001; Galai & Kedar-Levy, 2005; M. Gibbons & Hess, 1981). For example, in the models using monthly data, a *Jan* variable assumes value one if the month is January, and zero otherwise. To avoid perfect multicollinearity among the different subsets of seasonal dummy variables, which would make it

[230] The number of announcements on 30 June 2000 was the highest on an event window of several months. The number of announcements on 1 July was also exceptional for a Saturday.

impossible to compute the regression solution, one dummy variable has been left for each subset. Accordingly, *Quarter4* in quarterly data models, *February* in monthly data models, *Week5* in the weekly data model, and *Friday* in the daily data model, have been left from the long list of variables.[231] As a result, three variables representing quarters, eleven variables representing months, four variables representing weeks, and another four variables representing weekdays, were added to the long list of variables of the models using quarterly, monthly, weekly, or daily data, respectively.[232]

intervention variables:

To control whether FASB's new M&A accounting rules have had a significant impact on the M&A activity, two event dummy variables were created. These two variables-of-interest were added with the purpose of detecting any potential effects surrounding the interventions caused by FASB actions. An intervention takes place whenever there is some external influence at a particular time, which affects the dependent variable (Makridakis et al., 1998: 271). In the present research, these variables are also referred to as "event", or "target", variables.

As discussed earlier in this thesis, on 14 February 2001, FASB published a revised exposure draft, which contained the final proposals for a new M&A accounting. That document confirmed the tentative decision on a ban on pooling of interests, first announced on 6 December 2000, and introduced the replacement of purchased goodwill amortisation charges by impairment tests. The new proposals could result in an anticipation of M&A activity, with the purpose of avoiding the new accounting rules that would be enforced in the following summer. To capture this possible effect, a dummy variable has been

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[231] "*Week5*" variable has value one in the last week of a month, only if that month has five Thursdays. In some cases, *Week5* variable includes the first day of the following month. Since this variable is not as consistent as the remaining seasonal dummies employed in the model using weekly data, it has been chosen to do not include it in the long list of variables.

[232] Seasonal dummy variables in models using quarterly data: *Quarter1, Quarter2, Quarter 3*; monthly data: *Jan*, *Mar*, *Apr*, *May*, *Jun*, *Jul*, *Aug*, *Sep*, *Oct*, *Nov, Dec*; weekly data: *Week1*, *Week2*, *Week3*, *Week4*; and daily data: *Mon, Tue*, *Wed*, *Thu*.

prepared, *Event_ED*, with zero value before the 14 February 2001 and value one after this date.[233] As for the preceding 6 December 2000 FASB's announcement, it was merely tentative and therefore there was absolutely no need for companies to react, as they could continue to use the same business combinations accounting rules for an undetermined period.

Following the publication of the revised exposure draft, in June 2001 FASB issued two standards: SFAS 141, effective 1 July 2001, and SFAS 142, effective 16 December 2001. Although SFAS 142 has been made effective only in December, the document states that goodwill acquired in business combinations after June 30, 2001 shall not be amortised. Therefore, in practical terms, this means that both standards produce effects from 1 July 2001. To capture any possible effects resulting from the effectiveness of FASB's standards, a dummy variable *Event*, with zero value before 1 July 2001 and value one after, was added to the long list of variables.

lagged variables:

Finally, *MA_lag*, *Log MA_lag,* and *WITH_lag*, are lagged variables by one period of dependent variables *MA*, *Log MA*, and *WITH*, which have been included to handle residuals' autocorrelation.[234] This resulted in a reduction of one observation in the total of observations used in the models.

7.6 Univariate descriptive statistics

In this section, some univariate descriptive statistics are shown, which summarise the datasets used, and also enabling to examine some individual variables separately. The ranges of values, central tendencies, or data distributions, are some examples of parameters examined in the following paragraphs.

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[233] This variable is not used in the models using quarterly and monthly data, since the announcement date is not placed next to the end, or the beginning, of a quarter or month.

[234] These lagged variables are shown in the equations as MA_{t-1}, $Log\ MA_{t-1}$, and $WITH_{t-1}$.

Table E.1, exhibited in Appendix E, reports univariate descriptive statistics for unadjusted and non-dummy variables for the whole period of study, covering the 2000-2002's and the 1994-2008's samples. More precisely, panels A to C cover the 2000-2002's sample at different levels of aggregation, while Panel D reports univariate descriptive statistics for the larger period of 1994-2008.

Univariate descriptive statistics for variables employed in the models using monthly data are shown in Panel A. Apart from interest rates variables, *Fed* and *Fed Av*, all variables present low values of standardised skewness and standardised kurtosis. *IP* and *GDP* have progressed steadily during the period of study, and therefore present the smallest coefficients of variation, while *Fed* variables exhibit the highest values, due to numerous swift changes in Fed's monetary policy. In terms of dependent variables, *WITH* presents a higher coefficient variation than *MA*, a situation that can be regarded as normal, due to the reduced number of M&A cancellations, when compared to the number of M&A announcements. The quartiles distribution also seems normal for all variables, although *Fed* variables present lower and upper quartiles very close to minimum and maximum values, respectively. A further analysis of the histogram and the density trace for this variable, not shown in this thesis, revealed the existence of a double top, i.e., a high concentration of observations around 2% and 6%, respectively.

The situation of the interest rates is indeed a particular one, as the Federal Reserve, the central bank of the USA, commonly referred to as the "Fed", was very active, in terms of monetary policy, during 2001 and 2002. The US economy was in risk of recession and, in 2001, the Fed started aggressively to cut interest rates. If the average interest rates were above 6% in 2000, by the end of 2001 they were lower than 2%. In 2002, the interest rates would suffer further reductions, remaining at historically low levels.

Panel B exhibits univariate descriptive statistics for variables employed in the model using weekly data. The analysis is similar to the one made for Panel A.

In terms of coefficients of variation, it has increased for *MA* when compared with monthly data, while *Fed* continues to exhibit the highest coefficient.

However, some univariate descriptive statistics deserve particular attention. Apart for *MA*, the values of standardised kurtosis are outside the range of -2 to +2 for all variables. The range departure is also true for *MA*, but only in terms of standardised skewness. This situation suggests possible departures from normality, given that whenever standardised kurtosis and skewness value are outside the range there is a greater possibility of invalidation of the statistical tests in respect to standard deviation.

On the other hand, this situation can be regarded as normal, since weekly data is significantly more random than monthly data. Therefore, variables exhibiting signs of a possible departure from normality, as a result, for example, of asymmetric distributions, are to be expected, since extreme observations became more evident in weekly datasets. Furthermore, the outside values of standardised kurtosis and skewness analysis can be relativised, as the number of observations in the model using weekly data is sizeable, increasing the likelihood of a normal distribution of the dataset used.[235]

In conclusion, for the models using low levels of data aggregation in this thesis, indicators such as standardised skewness and standardised kurtosis are not meaningful, as they involve larger datasets. Nevertheless, they may signal the need for addressing statistical issues, regarding the subsequent models validation. The analysis of the daily dataset follows below.

Univariate descriptive statistics for variables employed in the model using daily data are presented in Panel C. This panel is divided in sections (1) and (2). Section (1) shows univariate descriptive statistics for the whole period, 2000-

[235] Vide the central limit theorem, which provides an explanation for the prevalence of the normal probability distribution whenever is used a sufficiently large number of independent random variables, each with finite mean and variance, justifying the approximation of large samples to a normal distribution in controlled experiments (Rice, 1995).

-2002, while section (2) is centred on the analysis of the periods that preceded and followed the effectiveness date of the new M&A accounting rules.

In terms of univariate descriptive statistics for the whole period, and comparing with the values of the statistics previously examined, a further deterioration has been registered. The coefficient of variation for *MA* has increased, and almost all values of standardised kurtosis and standardised skewness are outside the range. An expected outcome, as if weekly data proved to be more random than monthly data, it would be then for daily data to be on the extreme side of randomness. Accordingly, statistics such as standardised kurtosis and standardised skewness become even less relevant for the model using daily data, and its consideration can be relieved, as justified before.[236]

The observation of univariate descriptive statistics for the period -391 to +391 days around 1 July 2001, shown in section (2), reveals better indicators for the period preceding the effectiveness of the new accounting rules. In 2001, uncertainty ruled over markets and economy in the USA, and turbulence increased with the September 11 terrorist attacks. In addition to volatility, ex post event figures for M&A activity, stock prices indexes, and interest rates, were significantly lower. Consequently, the coefficients of variation increased for all variables, *post eventum*. This increase was particularly noteworthy for interest rates, as result of the previously described Fed policy. A minimum and maximum value of interest rates of 3.68% and 7.03%, before 1 July 2001, compares with rates in between 1.15% and 3.89% afterwards.

Finally, Panel D shows univariate descriptive statistics for the period from 1994 to 2008. Overall, and despite covering a much larger period, the results of the analysis for quarterly data are similar to the ones for the remaining dataset aggregations. For example, the coefficients of variation exhibit similar figures. There are also quarterly variables presenting values outside the expected range of standardised skewness and standardised kurtosis, namely *IP*, and *WITH* variables, respectively, for which the analysis made before applies.

[236] Ibidem.

7.7 Empirical tests and discussion of results

The statistical testing performed in this thesis has been made using the SAS 9.1 program, as previously mentioned, and using as well STATGRAPHICS Centurion XV, and STATISTICA 6.0.[237] The purpose of using different statistical software packages is twofold. Firstly, it allows to extend the number of statistical tests that can possibly be made. Although comprehensive, these programs include only a limited set of statistics among the vast range of existing tests and procedures. They also tend to be specialised in particular subsets, to the detriment of others. Although the combination of the three programs provides a large set of statistical tests, some computations were also computed manually (e.g. Theil's U statistic, from a holdout set). Secondly, the use of different programs, simultaneously, makes it possible to check and cross the outputs obtained using different programs, assuring the absence of computing mistakes.

7.7.1 Bivariate analysis

Following the previous summarisation and description of main data and variables used in this thesis, in this section a bivariate analysis is conducted, concerned with testing the relationships between pairs of variables, particularly between the dependent variables and the corresponding independent variables, in the context of the different models that have been developed. This analysis is intended to evaluate whether or not there exists an association, and the strength of such association, between specific sets of two variables. On the one hand, it is relevant to ensure that the explanatory variables are, in general, significantly related to the dependent variables, i.e. ensuring they have some relevant explicative power in the models. On the other, in the case of the

[237] STATGRAPHICS Centurion XV, henceforth referred as Statgraphics, is a statistical software package copyright of StatPoint, Inc (2006).
STATISTICA 6.0, is a statistical software package copyright of StatSoft, Inc. (2001).

independent variables, it is relevant to examine whether they exhibit high levels of association among each other, suggesting the inexistence of significant differences between variables, and therefore indicating a possible situation of redundancy in the use of a variable. In this case, it is also relevant to assess whether such high correlation is benign, in terms of model fitting.

Table F.1 presents Pearson and Spearman correlation coefficients for several variables taken from the long list. Correlation coefficients estimate the strength of the linear relationship between the variables. The correlation coefficient ranges between -1 and +1, representing -1 a perfect negative linear relationship, while, conversely, +1 indicates a perfect positive linear relationship. Coefficient values around zero indicate absence of linear relationship between variables. P--values, which test the statistical significance of the estimated correlations, are exhibited in italic in Table F.1. P-values below 0.05 represent statistically significant non-zero correlations at the 95% confidence level. Unlike Pearson coefficients, Spearman correlation coefficients are measured from ranks of data values rather than from data values themselves. As a result, Pearson coefficients are more sensitive to outliers than Spearman coefficients.

A Pearson/Spearman correlation matrix of coefficient estimates for non-dummy variables using monthly data is shown in Panel A. Apart from coefficients for pairs of variables involving *TD*, all correlations are significant at the 95% confidence level.[238] The only significant correlation for *TD*, at the 95% level, is with *MA*, if measured by Pearson correlations only. *TD* is also the variable with the lowest correlation coefficients. This may be justified by the specific nature of this variable, which has the characteristics of an adjustment variable, and consequently does not share the attributes of the remaining exogenous explanatory variables considered in the long list of variables.

Dependent variable *MA* presents higher correlation coefficients with the corresponding explanatory variables, than dependent variable *WITH*.

[238] More precisely, except for *TD*, all pairs present statistically significant non-zero correlations at the 99% confidence level.

Explanatory variables related to stock markets indexes and capitalisation, *SP500*, *SP500 Av*, and *MKTC*, are the ones who present the highest correlations with the dependent variables, *MA* and *WITH*.

In terms of overall correlations between independent variables, the highest coefficient values belong to variables that share similar features. It is the case of the quasi-identical pairs of variables, *Fed* and *Fed Av*, and *SP500* and *SP500 Av*, which are measured by final and average monthly values, and therefore share the same basis of construction. It is also the case of stock markets variables, which include stock prices index variables, *SP500*, and *SP500 Av*, and market capitalisation variable, *MKTC*, because they share the same nature. As mentioned earlier in this chapter, it is expected that stepwise regression will select the most appropriate set of variables from the long list of variables, by eliminating the most redundant variables. Otherwise, a manual elimination may be necessary to ensure the validity of the testing models.

Finally, as discussed earlier, time variables, *Per*, *Per_2*, and *Per_3*, are linearly related and therefore present high mutual Pearson correlation coefficients. Spearman correlations capture the linear dependence between variables in a different way. For the pairs of time variables, Spearman correlation coefficients assume +1 value, indicating, as expected, a perfect positive linear relationship between the variables.

A similar scenario is made visible in Panel B, where mutual correlations for non-dummy variables to be tested in the model using weekly data are shown. All pairs of variables present statistically significant non-zero correlations at the 99% confidence level, except for mutual correlations involving *TD*. The only significant correlation involving *TD* is with *MA*, also with a non-zero correlation statistically significant at the 99% confidence level, if measured by Pearson correlations, and still significant, but at the 95% confidence level, if measured by Spearman correlations. Exogenous explanatory variables, namely stock prices index and interest rates, continue to present high correlation coefficients, similar to time variables as well. As in Panel A, in terms of overall correlations, the

highest coefficient values belong to subsets of variables that share the same nature, or have identical basis of construction, such as the case of the variables constructed as linearly dependent.

Like panels A and B, Panel C shows correlation coefficients for variables employed in models developed to test hypothesis one, but using daily observations instead. Correlation coefficients for dummy variables are also shown, except for weekday's dummy variables.

Every pair of non-dummy variables presents statistically significant non-zero correlations at the 99% confidence level, while dummy variables only present statistically significant correlations with dependent variable *MA*. The correlation coefficients, which were inferior in weekly variables when compared to monthly variables, exhibit even lower values, as expected. Nevertheless, exogenous explanatory variables and time variables continue to present correlation coefficients not discreditable, similarly to dummy variables as well. The correlation of dummy variable *E_BoM* and dependent variable *MA* constitutes a good example, as it presents a Pearson correlation coefficient similar to the ones presented by pairs of *MA* and non-dummy variables, namely, *SP500*, *Fed*, and period. Most importantly, the majority of the explanatory variables continue to be correlated with *MA* at the 99% confidence level.

Finally, Panel D shows correlations between variables constructed for a long run testing. Interestingly, during the period 1994-2008, the correlation between M&A activity and stock prices was more weak than in every model used to test the period from 2000-2002, including the model using daily data. It appears that a longer period of data aggregation - this is, quarterly versus monthly, weekly, or daily – may oversmooth volatility in data, weakening the likely pairwise behaviour of M&A activity and stock prices. Nevertheless, the *MA* and *SP500* pair exhibits the second highest correlation value, behind the pair *MA* and *Fed*. Overall, the majority of the independent variables are correlated with *MA* and WITH variables, at least at the 95% confidence level.

The results obtained from the bivariate analysis corroborate, in general, the variables predictions and the theory that has been discussed previously. *GDP* variable is the only exception, as a positive correlation with *MA* would be expected. Nevertheless, it has been referred that M&A activity is procyclical, as generally it leads the business cycle (see e.g. Golbe & White, 1988; R. L. Nelson, 1959; Steiner, 1975; Weston et al., 1990). Consequently, the possible lag between M&A activity and GDP may have resulted in this outcome. It is feasible to admit this possibility, knowing that M&A waves and business cycles lengths are often long, and that a lag of several months may exist between these two different series. In any case, an in-depth examination of the reasons behind this possible contradiction is not relevant for the present research. In addition, following the backward elimination procedure that has been applied to the long list of variables, *GDP* variable has been selected for one model only. Consequently, the risk of model misspecification as a result of *GDP* inclusion is limited to a single model.

7.7.2 Multivariate analysis

The following multivariate analysis serves to corroborate the predictions made for explanatory variables. It also allows confirmation of the indications obtained from the bivariate analysis. This is made possible by the analysis of the coefficients exhibited by the variables which have been selected by the stepwise regression models. Nevertheless, the main purpose of the multivariate analysis is to examine whether event variables are selected for the models. In addition, a main concern is to verify if the data employed does not violate some key regression assumptions, namely, residuals normality, absence of serial correlation, and homoscedasticity. If these assumptions are not observed, then some parameters of the results, such as explicative power or confidence intervals, may be flawed, and in some extreme situations may even be seriously biased or misleading. Accordingly, a wide range of statistical tests was performed according to what is believed to be an appropriate diagnosis. Together, these tests also contributed for fitting the models, helping to choose

an appropriate functional form, and preventing some possible serious misspecification.

Due to the large amount of statistics that this section includes, the exhibition of the outputs had to be arranged following these criteria: tables resuming key statistics are mostly included in the body text, while full disclosure, using larger tables and additional illustrations, is placed in appendices.

In Appendix G the regression outputs for the models are exhibited, together with results from conformity tests. The outputs for equations (19), (20), (21), and (18) are shown in Table G.1, respectively on panels A, B, C, and D. All these models were constructed with the purpose of testing hypothesis one. Concurrently, Table G.2 exhibits the outputs for model equations (22) and (23), which have been created to test hypothesis two.[239]

Stepwise regression, with backward elimination, has been employed in all models, resulting in every variable left in the models to be significant at least at the 0.05 level. Most of the variables were created for specific models, resulting in quarterly, monthly, weekly and daily variables. Only five variables were considered in all models for a possible selection: *SP500* and *SP500 Av*, *Fed* and *Fed Av*, and intervention variable *Event*. As discussed earlier, the relevant intervention variable *Event_ED* was not used in the models employing quarterly and monthly data due to unfeasibility.

Following stepwise backward elimination, the stock prices index variable, represented by *SP500* and SP500_Av, was the most selected overall, corroborating existing literature, as mentioned recurrently in this thesis. More importantly, the intervention variables were not selected by any model. Consequently, at this stage the research hypotheses cannot be rejected in the null form. Nevertheless, it is very important to assess about the consistency of this critical finding. Accordingly, the remainder of this chapter is devoted to

[239] Table G.3 resumes the regression analysis results for hypothesis one and two, providing a condensed examination of the variables selected for every model developed in this thesis.

checking the robustness of the models and the validity of this finding, by means of testing regression model assumptions and other statistical issues, development of sensitivity analysis tests, and testing of predictive power, in order to control whether under different circumstances and facing possible model violations, such intervention variables could be selected for the models, possibly preventing to assume the preliminary finding that the research hypothesis cannot be rejected in the null form.

As mentioned before, Panel A, in Table G.1, presents the results for the model constructed to test hypothesis one, using monthly data. From the twenty-four variables initially considered, only eight have been selected for the final model, as a consequence of the backward elimination of sixteen variables. *Fed* and *Per_3* variables are significant at the 0.05 level, while the remaining selected variables are also significant at the 99% confidence level.

In terms of analysis of variance, *F*-ratio computed from ANOVA table is 68.49, with a p-value less than 0.05, therefore indicating a statistically significant relationship between the selected variables at the 95% confidence level.

In terms of goodness-of-fit for the model, the R-Squared statistic is 0.9546, which indicates that the final model explains 95.4% of the variability in *MA*. Nevertheless, the adjusted R-squared statistic is more suitable for comparing models with different numbers of independent variables. The adjusted R--squared is a modification of the standard R^2. It simply adjusts for the number of explanatory terms that a model includes. R-squared may result misleadingly, because when a model employs many variables, some unrelated explanatory variables' variations may explain small portions of the variation of the dependent variable. Therefore, the adjusted R^2 is often a more consistent indicator. In this model, the R-squared statistic adjusted for degrees of freedom is 94.07%. That means that the eight variables selected by the backward regression account for 94.07% of the explained variance in the model, which represents a significant percentage. Regarding the standard error of the estimate, it exhibits a standard deviation of the residuals of 28.05, while the

mean absolute error (MAE), which measures the average value of the residuals, is 19.33.

In Panel B, the regression outputs for the model using weekly data are shown. The stepwise backward regression procedure resulted in the elimination of seven variables from the initial sixteen. Nine variables have therefore been selected for the final model. Every variable that was selected is significant at the 95% confidence level, and only *Fed* and *Week3* are not significant at the 99% level. The construction of ANOVA table provided an *F*-ratio value of 49.60, with a p--value inferior to 0.05, which indicates the existence of a statistically significant relationship between the variables at the 95% confidence level.

The adjusted R-squared statistic indicates that the fitted model explains 73.95% of the variability in *MA*. The standard deviation of the residuals is 17.32, while the mean absolute error of the residuals is 13.40. The comparison of these statistics with the ones from the model using monthly data, allows one to observe a decrease on the predictive power of the model, as adjusted R-squared value has decreased. On the other hand, a reduction was recorded on the average value of the residuals and on the standard deviation of the residuals.

Panel C exhibits the statistical outputs for the model using daily data. From the initial fifteen variables, only four were removed: *Fed*, *Per_3*, *Event*, and *Event_ED*. All weekdays and remaining endogenous explanatory dummy variables were selected, being every variable significant at the 95% confidence level. While the selection of *Per*, *Per_2*, and *Per_3* variables means this is a third-order, or cubic, polynomial regression model, the selection of weekly dummy variables and other endogenous variables confirm the existence of significant M&A patterns of behaviour, such as the case of the "Monday effect" and the "end-and-beginning-of-the-month phenomenon" (e.g. Branch et al., 2001; Thomson Financial, 2006). Like in previous models, SP500 keeps exhibiting a high level of significance. The lagged dependent variable, *MA_lag*, was also selected. The *F*-ratio from analysis of variance is 95.34. Since its p-

-value is less than 0.05, there is a possible statistically significant relationship between the variables at the 95% confidence level.

The variability of *MA* is explained in 57.09% by the final model. Although lower than the remaining models, it continues to constitute a significant percentage of explanation of the variability in *MA*. Comparing with the model using weekly data, alongside with the decrease on the adjusted R-squared statistic, a further reduction on the standard deviation of the residuals, from 17.32 to 6.69, and on the MAE of the residuals, from 13.40 to 5.14, has also been observed.

Finally, regarding testing hypothesis one in the long run, Panel D shows the regression output for the model using quarterly data. The stepwise backward regression procedure resulted in the elimination of nine variables from the initial thirteen.[240] Every variable selected is significant at the 99% confidence level. The *F*-ratio ANOVA value is 66.13, with a p-value inferior to 0.05, which indicates the existence of a statistically significant relationship between the variables at the 95% confidence level. In this model, the R-squared statistic adjusted for degrees of freedom is 81.78%. The standard deviation of the residuals is a mere 0.0335, while the MAE exhibits also a residual value of 0.0262.

[240] The use of stepwise regression resulted in the selection of two variables, *SP500* and *MKTC*, which may raise concerns as they are both market variables. Nevertheless, the metrics used in these variables are different, as *SP500* considers the closing market prices at the end of a quarter, while *MKTC* weights the total market value of a whole quarter. Furthermore, as to be demonstrated throughout this chapter, from a statistical viewpoint, the model fitting seems appropriate and valid. Therefore, the outcome of the stepwise regression was accepted. Nevertheless, in order to avoid any misjudgement, as a result of a possible biasing presence of these two variables together in the final model, some alternative regressions were run. In terms of results, had *SP500*, or *MKTC*, been manually eliminated, and the adjusted r-squared would be reduced to 78.22% or 75.40%, or, respectively. Regarding the regressions analyses shown in this thesis, the results of such alternative testing did not indicate the need for any significant adjustments.

As for hypothesis two, the results are shown in Table G.2. Panel A shows the estimation and tests results for equation (23), which uses monthly data, and *WITH* as dependent variable. From the initial twenty-five monthly variables, nine have been selected for the final model, to the detriment of the other sixteen, which have been eliminated following the backward elimination procedure. *TD* categorical variable and *Oct* dummy variable are significant at the 95% level, while the remaining selected variables are also significant at the 99% level. The ANOVA *F*-ratio is 20.80, and the p-value is less than 0.05, suggesting a statistically significant relationship between the variables at the 95% confidence level. The adjusted R-squared statistic indicates that the model as fitted explains 83.976% of the variability in the number of withdrawn M&A deals. In respect to residuals, the standard deviation is 3.6517, and the MAE is 2.6611.

Finally, Panel B shows the regression output for the model testing the long run and using quarterly data. Nine out from fourteen variables initially considered were eliminated. Therefore, five variables have been selected for the final model, namely *SP500_Av*, *Fed*, *MKTC*, *IP*, and *TD*. Apart TD, significant at the 95% level, all other variables are significant at the 99% confidence level.[241] *F*-ratio ANOVA value is 65.03, with a p-value inferior to 0.05, suggesting a statistically significant relationship between the variables at the 95% confidence level.

The variability of *WITH* is explained in 84.66% by the fitted model, a significant percentage. The standard deviation of the residuals is 13.75, and the MAE is 10.42, values several times superior to the three models examined immediately before. Nevertheless, they compare well with the high values of models testing hypothesis one and using monthly and weekly data. The existence of possible misspecifications and statistical violations is therefore to be analysed in the following sections of this chapter.

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[241] Ibidem, with the difference that in this case *SP500_Av* was chosen instead of *SP500*. Had *SP500_Av*, or *MKTC*, been manually eliminated, and the adjusted r-squared would be reduced to 75.44%, or 82.11%, respectively

autocorrelation:

Regression with time series involves several assumptions that need to be checked (see e.g. Dougherty, 2002; Gujarati, 1995; Lomax, 2007; Makridakis et al., 1998; D. C. Montgomery et al., 2001; Stevens, 2002). The existence of autocorrelation is one of the possible serious violations of the statistical assumptions underlying the regression analysis. The examination of a possible missing independence in the residuals is therefore critical.

It is a fact that the assumption of uncorrelated, or independent, errors for time series data is not often appropriate, since it is usual that errors in time series data exhibit serial correlation (see e.g. D. C. Montgomery et al., 2001). Furthermore, is no less true that serial correlation in the residuals indicates that the regression model is possibly misspecified or, at least, that its fitting could be improved.

The analysis of the autocorrelations and partial autocorrelations is as important in an early stage of the models construction, as it is afterwards. In the present research, were analysed estimated autocorrelations and partial estimated autocorrelations using Statgraphics.[242] The examination of autocorrelations in residuals is critical to perceive whether the time series may not be completely random. In time series, random numbers are often referred as noise. If residuals are not random, this may indicate there are interactions the model was not able to capture. In estimated autocorrelations, the lag k autocorrelation coefficient measures correlations between values of residuals at time t and time t-k.

Partial autocorrelations can be used to measure the degree of relationship between lagged variables, Y_t and Y_{t-k}, when the effect of other time lags is removed, helping to determine the order of autoregressive model needed to fit the data. It has been previously mentioned that the long list of variables includes, for every model, a lagged dependent variable, by one period. In the

[242] The following conclusions and definitions are mostly taken from reports and tables produced by Statgraphics (StatPoint Inc., 2005, 2006).

tables produced by Statgraphics, the lag k partial autocorrelation coefficient measures correlations between values of residuals at time t and time $t+k$, having previously accounted for the correlations at all lower lags.

Exhibited in Appendix H are the estimated autocorrelations and the estimated partial autocorrelations tables for the models used in this thesis. Figures with autocorrelations correlograms are also included, enabling an easier visualisation.

Table H.1 presents the autocorrelation tables for the models used to test hypothesis one. The figures on these tables are also exhibited as correlograms in Fig. H.1. For the model using monthly data, exhibited in Panel A, the estimated autocorrelations coefficients are contained within the 95% probability limits for the eleven lags defined by default in Statgraphics, accordingly to the sample size, meaning that none of the autocorrelations coefficients is statistically significant at the 0.95 level. This outcome indicates that the time series may well be completely random, being equivalent to a white noise series.

As for the model using weekly data, which autocorrelations are shown in Panel B of Table H.1, and in Fig. H.1, the findings are identical to the model using daily data. All twenty-four coefficients are contained in between the 95% probability limits. Since the autocorrelations are not statistically significant at the 0.95 level, the time series is therefore likely to be completely random. Similarly, as shown in Panel D, all the nineteen coefficients of the model using quarterly data are within the 95% threshold.

In terms of estimated autocorrelations for residuals in the model using daily data, three of the twenty-four autocorrelations coefficients are statistically significant at the 95% confidence level, suggesting that the time series may not be entirely random. Nevertheless, when probability limits are eased to 99%, none of the autocorrelations coefficients are statistically significant, indicating, in opposition, that the time series may well be completely random, but only at a lower confidence level.

As it is possible to verify in Table H.2 and in Fig. H.2, the autocorrelations figures for residuals in the models used to test hypothesis two, reveal that all coefficients are contained in between the 95% probability limits. Since the autocorrelations are not statistically significant at the 0.95 level, the time series may well be therefore equivalent to white noise series.

In terms of partial autocorrelations, like in the case of the estimated autocorrelations, most of them are contained in the 95% probability limits, as shown in Table H.3 and Table H.4. The exceptions are one partial autocorrelation for each of the models using weekly and quarterly data (hypothesis one), and two partial autocorrelations for the model using daily data. When the probability limits are eased to 99%, none of the autocorrelations coefficients are statistically significant, indicating that the time series may well be entirely random.

The global analysis of the autocorrelations and partial autocorrelations at the several lags provides no indications of serious autocorrelation in the residuals, except perhaps for the model using daily data. In order to investigate further this possibility, and also to corroborate the absence of serious autocorrelation in the models, other statistics were performed as follows.

Durbin-Watson (DW) is a classic statistic, used to detect the presence of autocorrelation in the residuals. It also tests for a possible misspecification of the models, as a result of an inadequate fitting. It tests residuals in order to capture any significant correlations in data, based on the order in which residuals arise in the series that have been utilised. More precisely, the Durbin--Watson statistic tests for first-order serial correlation in the residuals of a time series regression. Its value has the range from zero to four. A value less than two suggests a positive autocorrelation, while a value greater than two indicates a negative autocorrelation. A commonly rule of thumb given for Durbin-Watson

statistic is that a value of approximately two indicates that there is no serial correlation.[243]

From the observation of Table G.1 and Table G.2, shown in Appendix G, it is possible to observe that, for every model, Durbin-Watson *d*-statistic present values close to the statistic reference value, and p-values greater than 0.05 as well. For the model employing quarterly data used to test hypothesis one, *d*--statistic value is 2.005, with a p-value is 0.31. Since the p-value is greater than 0.05, there is no indication of serial autocorrelation in the residuals at the 95% confidence level. The models employing monthly data and daily data exhibit a similar condition. Finally, although presenting a *d*-statistic more distant from the reference value, 1.808 versus two, the p-value for the model using weekly data of 0.11729 is greater than 0.05, therefore suggesting the inexistence of significant serial autocorrelation in the residuals at the 95% confidence level as well. For the models developed to test hypothesis two, as shown in Table G.2, the same condition: Durbin-Watson *d*-statistic is also more distant from the reference value, but has p-values greater than 0.05. Since every p-value is comfortably greater than 0.05, there is no indication of the existence of serial autocorrelation in the residuals at the 95% confidence level for all regressions shown in this thesis.

The interpretation of Durbin-Watson statistic can be more or less conservative. For instance, Ott (1992) argues that if the statistic value ranges within 1.5 and 2.5 there is no serious problem of autocorrelation. Nevertheless, a more accurate interpretation lies in the examination of lower and upper critical values of Durbin-Watson *d*-statistic as exhibited in Appendix I (see e.g. Brooks, 2005; Dougherty, 2002; Makridakis et al., 1998). Fig. I.1 illustrates the five regions of the Durbin-Watson *d*-statistic, which can be computed using DW_L and DW_U values.[244] If *d*-statistic is lower than DW_L, or higher than 4-DW_L, it indicates the existence of positive, or negative, significant autocorrelation, respectively. If *d*-

[243] Information about DW taken from Brooks (2005), Dougherty (2002), Makridakis et al. (1998).

[244] DW_L and DW_U for Durbin-Watson *d*-statistic lower and upper critical values, respectively.

-statistic lies in between DW_U and 4-DW_U there is no indication of autocorrelation. Finally, if it is between DW_L and DW_U, or between 4-DW_U and 4-DW_L, the test is inconclusive. Table I.1, also includes the critical values used in this thesis for the examination of the Durbin-Watson statistic.

Table 7.1 First lag autocorrelations and Durbin-Watson statistic values

	Hypothesis One				Hypothesis Two	
	Quarterly	**Monthly**	**Weekly**	**Daily**	**Quarterly**	**Monthly**
First lag autocorr.	-0.022356*	-0.05281*	0.09207*	-0.00482*	0.009070*	-0.18472*
Durbin's *h*	-0.2086*	-	-	-0.22345*	-	-
Durbin-Watson *d*	2.00502*‡	2.07124*†	1.80846*†	2.00652*‡	1.9579*	2.28273*†

* No significant autocorrelation at the 5% significance level

† Inconclusive test using critical values for Durbin-Watson (see Table I.1)

‡ Inappropriate test since the model employs a lagged dependent variable

Table 7.1 presents first lag autocorrelations and Durbin-Watson statistics for all models. As exhibited in Appendix H, apart from one model using weekly data, and another one using quarterly data, all first lag autocorrelations are negative. Table 7.1 also shows the Durbin-Watson *d*-statistic values as reported previously in Appendix G. No significant autocorrelations at the 5% significance level has been found. The significance levels were also measured using critical DW values, as shown in Appendix I, in accordance to the interpretation of the five regions of the Durbin-Watson *d*-statistic.[245] As exhibited in Table 7.1, the interpretation comes inconclusive for the models using monthly and weekly data. For the models using quarterly and daily data, the analysis of DW critical values corroborates the previous indication of absence of any significant autocorrelation in the residuals.

[245] A measurement and interpretation example for the model using weekly data follows. Given that there are nine explanatory variables and 155 observations used, we have k=10 and n=155, and critical values DW_L=1.616 and DW_U=1.861. Since the test statistic, 1.808, is greater than the lower critical value, but lower than the upper critical value, it is not therefore possible to conclude if there is any lack of independence in the errors.

The long list of explanatory variables includes lagged dependent variables. One of the main purposes of such inclusion is to correct potential AR errors. Nevertheless, whenever the regression incorporates lagged dependent variables, the Durbin-Watson *d*-statistic is inappropriate to test for autocorrelated residuals, because it tends to be biased towards two, its reference value. That is the case of the models employed to test hypothesis one, and using quarterly or daily data, where the stepwise backward elimination resulted in the selection of the lagged dependent variable.

In case a model uses a lagged dependent variable by one period as an explanatory variable, Durbin's h test must be considered (see e.g. Dougherty, 2002).[246] The appropriate critical value for Durbin's h at 5 % level of significance is ±1.96. Therefore, for a test of the null hypothesis of no autocorrelation against the two-sided alternative of autocorrelated errors, the decision rule is if $-1.96 < h < 1.96$ then do not reject the null hypothesis. Since the computed Durbin's h values of -0.2 are within the critical values of a standard normal distribution, the null hypothesis of no evidence for autocorrelation in the residuals cannot be rejected as well.

Finally, additional specific tests for randomness of residuals were performed. These kinds of tests are used to examine whether residuals consist in a random sequence of numbers. Using Statgraphics, three main tests were run:[247] i) the first test counts for the number of times that the residuals sequence was above or below the median. In the case of the model using monthly data, with the purpose of testing hypothesis one, the number of runs was twenty, versus an expected number of eighteen. The large sample test statistic Z for this regression model is 0.5224, with a p-value of 0.601338; ii) the second test counts the number of times the residuals sequence rises or fall. The number of runs up

[246] The Breusch-Godfrey test, which covers autocorrelations of higher orders, could be used alternatively. This test has the advantage of remaining appropriate even when regressors may include lags of the dependent variable, However, this statistic it is not reliable for relatively small samples.

[247] The tables in Appendix G exhibit the results for Box-Pierce test only.

and down was twenty-three, which matches with the expected number of runs up and down. Test statistic Z value is 0.5224, with a p-value of 0.536876; and finally, iii) Box-Pierce test which is, by default in Statgraphics, based on the sum of squares of the first twenty-four autocorrelation coefficients.[248] Nevertheless, in this case, the small sample size makes it possible to perform the test based on the first eleven autocorrelations only. The p-value for this test is 0.630565. Since every p-value for the three tests performed for the equation (19) is greater than 0.05, the hypothesis that the series is random at the 95%, or higher confidence level, cannot be rejected.

As for the model examined above, the same three tests of randomness of residuals were performed for the model using weekly data. For equation (20), the runs above and below median test has a statistic Z value of 0.4042; runs up and down test has a statistic Z value of 1.2455; and Box-Pierce test exhibits the value of 23.701. All the p-values are greater than 0.05: 0.686037, 0.212927, and 0.478771, respectively. Consequently, the hypothesis that the series of residuals is random at the 95% confidence level cannot also be rejected. Similar results were also obtained for the model using quarterly data, with p-values of 0.691054, 0.27234, and 0.187742.

In the case of the model using daily data, two of the performed tests have p--values greater than 0.05. It is the case of runs above and below median test, and runs up and down test. However, Box-Pierce test presents a p-value which is only greater than 0.01. Consequently, the hypothesis that the series is random at the 95% confidence level can be rejected. According to Statgraphics (StatPoint Inc., 2005, 2006), since the three tests are sensitive to different types of departures from random behaviour, failure to pass any test suggests that the time series may not be entirely random. Nevertheless, since the Box-Pierce test is still greater than 0.01, the hypothesis that the series is random cannot be rejected at the 99% confidence level.

[248] Tests descriptions based on Statgraphics's tests reports and user's guide (StatPoint Inc., 2005, 2006).

Regarding the models used to test hypothesis two, the same three tests for randomness of residuals present p-values greater than 0.05. Therefore, it cannot be rejected the hypothesis that the series of residuals is random at the 95%, or higher, confidence level.

normality:

Another statistical assumption of the regression model is that the error term is normally distributed. Sometimes the error distribution is skewed, or may suffer from abnormal kurtosis, as a result of the presence of extreme observations. The regression parameter estimation is based on the minimisation of squared errors, and a few large outliers are enough to influence such estimates. In case the error distribution is significantly abnormal, the confidence intervals may be too much wide, or too narrow, and the significance tests may result inappropriate (see e.g. Makridakis et al., 1998).

A set of figures is shown in the Appendix J, with the purpose to allow the graphic visualisation of the residuals' distribution. One of the immediate ways to assess whether errors are normally distributed, is to check if the residuals are scattered in a horizontal band with no values too far from such band, and to check whether no visible patterns exist, such as curvatures or increasing spreads (see e.g. Makridakis et al., 1998). The plots of residuals, in Fig. J.1 and Fig. J.2, exhibit no such patterns, despite some outliers that are made visible, particularly in the model using daily data.

The analysis of histograms of residuals proves to be very helpful for an improved insight concerning the residuals normality. Fig. J.3 and Fig. J.4 plot histograms of residuals, with a normal distribution superimposed, for models used to test hypothesis one and two, respectively. The histograms exhibit the number of residuals obtained within each of the intervals marked on the horizontal axis, while the normal curve shows how many observations would be obtained on average for a normal distribution (Makridakis et al., 1998: 263). According to the histograms shown in Appendix J, the normality assumption seems to be ensured.

Finally, Fig. J.5 and Fig. J.6 exhibit normal probability plots for residuals. Its visualisation is perhaps the best procedure, whenever using visual observation, to evaluate whether errors follow a normal distribution pattern. These figures plot the quantiles of error distribution versus the quantiles of a normal distribution having the same mean and variance. If the distribution is supposed to be normal, then the points on these plots should fall close to the 45° diagonal line. Deviations from that line suggest departures from normality. An s-shaped pattern of deviations from the diagonal indicates that the residuals have excessive kurtosis, while a bow-shaped pattern of deviations from the diagonal line suggests that the residuals have excessive skewness. In terms of analysis of the plots shown in Fig. J.5 and Fig. J.6, the graphical observation corroborates the previous indications of a normal distribution of errors for every model used in this thesis.

Besides the graphical analysis, a wide range of statistical tests was performed to test normality under the null hypothesis that the residuals are normally distributed. Some of the key statistics displayed in those tables are resumed below in Table 7.2.

Table 7.2 Key tests for residuals' normality

	Hypothesis One				Hypothesis Two	
	Quarterly	**Monthly**	**Weekly**	**Daily**	**Quarterly**	**Monthly**
Chi-Squared	15.2375	4.77137	33.0323	41.3188	14.5593	16.6575
	0.578382	*0.97988*	*0.16115*	*0.85599*	*0.62719*	*0.21544*
Shapiro-Wilk W	0.97507	0.95536	0.96908	0.98240	0.98238	0.94590
	0.483264	*0.21262*	*0.03755*	*0.07773*	*0.77596*	*0.10997*
Kolmogorov-Smirnov	0.08985	0.08167	0.05955	0.02704	0.05177	0.15148
	0.72748	*0.97369*	*0.64161*	*0.61745*	*0.99741*	*0.40288*
Kuiper V	0.14359	0.15212	0.09618	0.04792	0.09383	0.22084
	≥ 0.10	*≥ 0.10*	*≥ 0.10*	*≥ 0.10*	*≥ 0.10*	*≥ 0.10*

P-Values in italic.

The tests exhibited in Table 7.2 are commonly used to find whether residuals can be adequately modelled by a normal distribution. Given that small departures from normality may not affect the validity of analysis of the tests, it is therefore important to complement the examination of plots and key statistics with a wider set of tests for a final assessment of normality. Therefore, additional tests were also performed, as exhibited in Appendix G tables.

According to Statgraphics's tests reports and user's guide (StatPoint Inc., 2005, 2006): i) chi-squared test divides the range of residuals into sixteen equally probable classes and compares the number of observations in each class to the number expected based on the fitted distribution; ii) Shapiro-Wilk W test is based upon comparing the quantiles of the fitted normal distribution to the quantiles of the data; iii) standardised skewness test examines for lack of symmetry in the data; and finally, iv) standardised kurtosis test examines the distributional shape, which may be either flatter or more peaked than a normal distribution. Goodness-of-fit tests for residuals were also performed: v) Kolmogorov-Smirnov (K-S) test computes the maximum distance between the cumulative distribution of residuals and the cumulative distribution function

(CDF) of the fitted normal distribution;[249] while vi) Kuiper V, Cramer-Von Mises W^2, Watson U^2, and Anderson-Darling A^2 tests and modified forms, compare the distribution function to the fitted CDF in different ways.

The power of the statistical testing increases as the sample size becomes larger, making it increasingly easier to detect smaller departures from normality.[250] Nevertheless, the power of the tests can also vary according to different sample size categories. For example, according to SAS Institute, Inc. (2004), for a sample size larger than 2000 observations, the Kolmogorov-Smirnov test is more suitable, while if the sample size is less than 2000, Shapiro-Wilk test should be used. On the other hand, there are researchers who argue that the Shapiro-Wilk test was conceived for sample sizes up to fifty observations, being other tests, such as the Anderson-Darling test, more adequate for testing samples sized from 51 to 1999 observations. Therefore, in the present research, Shapiro-Wilk test seems to be the most appropriate one for the models using monthly data, while other tests, such as the Anderson-Darling test, seem to be more adequate for the remaining models. Although the Kolmogorov-Smirnov test does not seem particularly appropriate for any of the models, it has been decided to keep it in the analysis, since it is a classical test to examine normality. It is also important to bear in mind that all these sample size considerations are merely rule of thumb. Accordingly, all tests ran are shown in this thesis to be considered at the discretion of the reader

Regarding the tests results for equations (18) and (19), all p-values obtained for chi-squared, Shapiro-Wilk W, standardised skewness, and standardised kurtosis, are greater than 0.05. Therefore, the hypothesis that residuals come from a normal distribution cannot be rejected at the 95% confidence level. The p-values of K-S test, modified Kolmogorov-Smirnov D (K-S D), Kuiper V and modified Kuiper V, Cramer-Von Mises W^2 and modified Cramer-Von Mises W^2, Watson U^2 and modified Watson U^2, and Anderson-Darling A^2 and modified Anderson--Darling A^2 tests, are also all greater than 0.05, which, consequently,

[249] For example, the maximum distance is 0.0816716 for equation (19).

[250] Power of the test means ability to reject the null hypothesis of normality.

corroborates the previous indication of not rejecting the hypothesis that residuals come from a normal distribution with 95% confidence. This finding also corroborates the graphical observation made before.

As for the model using weekly data, except for Shapiro-Wilk W test, all tests performed to examine the normality of residuals and the goodness-of-fit tests for residuals: chi-squared test, standardised skewness, standardised kurtosis, K-S and modified K-S D tests; Kuiper V, Cramer-Von Mises W^2, Watson U^2, Anderson-Darling A^2 tests, and modified V, W^2, U^2, and A^2 versions, respectively; present p-values greater than 0.05. Since the p-value for Shapiro--Wilk W test is only greater than 0.01, the hypothesis that residuals comes from a normal distribution can be rejected at the 95% confidence level, but cannot be rejected at the 99% level.

The lower p-value obtained for Shapiro-Wilk W statistic can be observed as normal. As mentioned before, whenever weekly or daily data is used, departures from normality become a normal situation. For example, Marais (1984) found that weekly residuals from CAR may deviate from normality with respect to skewness and kurtosis. In fact, a few outliers are often enough to deviate a series from normality. Moreover, since the sample size is greater than fifty observations, Shapiro-Wilk is not regarded as the most appropriate test. Accordingly, it seems to be arguable to admit that the residuals are normally distributed.

With regards to the model using daily data, in terms of goodness-of-fit tests for residuals, the hypothesis that residuals come from a normal distribution with 95% confidence cannot be rejected, given that the smallest p-value amongst the specific tests performed, such as the previously referred Kuiper V and K-S tests, is greater than 0.05.[251] This conclusion is corroborated by other tests for normality for residuals, such as chi-squared and Shapiro-Wilk tests, which have p-values higher than 0.05 as well. Nevertheless, skewness and kurtosis Z-score's

[251] Apart Chi-Squared Test, every p-value is based on general tables and may be very conservative (StatPoint Inc., 2005).

exhibit very low p-values. Accordingly, it could be rejected the idea that residuals comes from a normal distribution with 95% confidence. Nevertheless, as mentioned before, the low p-values presented by standardised skewness and kurtosis match with the situation portrayed by authors such as Marais (1984).[252] It is also important to point out that the regression results and tests presented in Appendix G include outliers, since its removal has been made at a later stage only. They will be examined in depth in the next section of this thesis.

Finally, in what concerns to the models used to test hypothesis two, apart modified K-S D test in the equation employing monthly data, all tests performed for the normality and goodness-of-fit tests for residuals, resulted in p--values greater than 0.05. When generic p-values are used, instead of specific p--values constructed specially for fitting the selected distribution, all p-values are greater than or equal to 0.10. Furthermore, Kolmogorov-Smirnov does not seem to be appropriate for this model, since it is more adequate for models employing more than 2000 observations. Accordingly, it seems that the hypothesis that residuals comes from a normal distribution cannot be rejected at the 95% confidence level, for both models using quarterly and monthly data.

heteroscedasticity:

Homoscedasticity, often referred to as homogeneity of variance, means that the error term has constant variance across observations. It is another assumption of the regression analysis. In opposition, heteroscedasticity is a violation of this assumption. When such violation occurs, it may affect the variance and the standard error of parameter estimates, the interval estimation, the hypothesis testing, Pearson coefficients, among other.

Heteroscedasticity often occurs when there is a large difference between sizes of observations. In the early stage of development, the model using daily data

[252] As discussed earlier, departures from normality are common whenever weekly or daily data is used. Additionally, outliers can be kept in the models with no consequences in respect to the models validation. Therefore, the lower p-values for skewness and kurtosis do not seem to constitute a problem.

included weekends. Since the number of announcements at weekend days is clearly outnumbered by the activity occurred during business days, weekends had to be removed from the final sample.

The Test of First and Second Moment Specification was run, following White's (1980) procedure. Its tabled values, exhibited in Table 7.3, were computed using SAS. The specification test assumes the null hypothesis that the error terms have homogeneous variance.

Table 7.3 Tests for heteroscedasticity

Model	**Data**	**DF**	**Chi-Square**	**Pr > Chi-Sq.**
Hypothesis One	Quarterly	14	13.35	0.4989
	Monthly	34	25.95	0.8372
	Weekly	46	41.54	0.6593
	Daily	60	73.28	0.1165
Hypothesis Two	Quarterly	20	26.44	0.1518
	Monthly	38	31.23	0.7737

As shown in Table 7.3, the lowest p-value of the Chi-Square test for the regression models is 0.1165. Therefore, the null hypothesis of a homoscedastic error variance is supported, as it has been found that residuals are not heteroscedastic at the 0.05 confidence level.

7.7.3 Outliers and influential points

As examined in the previous sections, overall, the models meet the basic regression assumptions. However, the impossibility of obtaining confirmations at the 95% confidence level in every occasion, suggest the existence of possible relevant outliers. The presence of outliers and high influential points increases the likelihood of violations of statistical assumptions, a situation that may lead

to biased or misleading results. Since no treatment has been given to outliers and influential points, like elimination of extreme observations, it is therefore recommendable to identify abnormal observations in order to evaluate any significant effects that may come from its presence in the models.

outliers:

By definition, an outlier is an individual data point which is inconsistent or very different from the remaining observations (Iglewicz & Hoaglin, 1993; Stevens, 2002), as it does not "fit the trend set by the balance of the data" (Myers, 1990: 221). It therefore consists in observations with large residuals (Makridakis et al., 1998).

The presence of outliers is a reason of particular concern, since many statistical measures, such as the mean and the variance, are sensitive to abnormal observations. Its presence in data can also contribute to the violation of statistical assumptions. Moreover, outliers can influence significantly the regression results: from R-squared values; to increases in the standard errors of the regression coefficients. It is therefore important to identify outliers, as it is important to evaluate its possible impacts on the regression results. If such impacts are significant, it may be needed to give residuals' an adequate treatment, in order to ensure the robustness of the results.

Outliers may occur because of an error in data recording or an entry error, or simply because the subjects are different from the rest (Stevens, 2002, 2007).[253] In the first case, raw data points should be checked, and corrected if possible, or deleted otherwise. If they do not result from an error in data, the outlier can be then considered for deletion but only in case of extreme observations, since there is also the possibility of modelling outliers separately. Robust regression techniques can also be used to reduce the impact of abnormal observations, avoiding its deletion.

[253] Rare events and novel phenomena, inadequate distribution assumptions, or dynamic and unknown data structures, are other examples of possible sources of outliers, mentioned by other authors such as Iglewicz & Hoaglin (1993).

There are several techniques used to detect outliers, being the analysis of studentised residuals one of the commonest. Studentised residuals can be computed in different ways, one of which is to measure how many standard deviations each observed value of the response variable deviates from a model fitted using all data, except that observed observation (StatPoint Inc., 2006). This procedure results in an externally studentised residual, which is commonly labelled as R-student.

According to Myers (1990), an informal rule of thumb is that a R-student that exceeds +2 or -2 could be a potential outlier. Nevertheless, other authors argue that cut-off points of ± 2.5, ± 3, and even ± 4, can be also acceptable in some conditions, although higher cut-off levels require more careful attention. Observations with studentised residuals greater than three can be considered for removal, or for separate handling.

Appendix K' Fig. K.1 and Fig. K.2 show Box-and-Whisker plot of residuals for the models developed to test hypotheses one and two, respectively. In the Box--and-whisker plot, the central box represents the values from the lower to the upper quartile, i.e., 25 to 75 percentile. The vertical middle line dividing the lower and upper quartiles represents the median. The horizontal line extends from the minimum to the maximum value, excluding any possible extreme points. These extreme points are shown as separate points, outside the boxplot, and can be classified as outside or far out values, i.e., mild or extreme outliers, respectively. An extreme point can be considered as a mild outlier if a value is smaller than the lower quartile minus 1.5 times the interquartile range, or larger than the upper quartile plus 1.5 times the interquartile range. An extreme outlier will be considered when a value is smaller than the lower quartile minus 3 times the interquartile range, or when a value is larger than the upper quartile plus 3 times the interquartile range.

The residuals' quartiles distribution seems normal for all models, even if skewed in the case of the models testing hypothesis two, or using quarterly data (i.e.

three models). There are three plots exhibiting extreme points outside the boxplot: in the case of the models using quarterly data and in the model using daily data. These extreme points may be possible outliers. However, since they are smaller than the lower quartile minus 1.5 times the interquartile range, and larger than the upper quartile plus 1.5 times the interquartile range, they can be considered as possible "mild" outliers only.

Table K.1 and Table K.2 list the observations with studentised residuals greater than two in absolute value for all models, except for the model using daily data, for which only R-student greater than three are exhibited. In terms of hypothesis one' models, the one using quarterly data has one studentised residual greater than ± 3. The model using monthly data has two studentised residuals greater than ± 2 and one greater than ± 3, while the one using weekly data has nine studentised residuals greater than ± 2, and two studentised residuals greater than ± 3. The model using daily data includes thirty-four studentised residuals greater than ± 2, six studentised residuals greater than ± 3, and four greater than ± 4, therefore raising some concerns.

Concerning the models used to test hypothesis two, the one using quarterly data has two studentised residuals greater than ± 2 and one greater than ± 3. Finally, the model using monthly data has two studentised residuals greater than ± 2, but none greater than ± 3. Therefore, in the case of these models, outliers do not seem to constitute a reason for concern.

Following the initial diagnosis, made possible by the use Box-and-Whisker's plots, and the later examination of studentised residuals', only the model used to test hypothesis and using daily data appears to constitute a reason for concern, since it includes several outliers outside the range, with many R--student values greater than ± 3.

Alongside with the R-student analysis, there are other tests used to identify outliers. The Rosner's test, the Dixon's test, and the Grubbs' test, are examples of tests based on hypotheses testing that are commonly used for normal

distributions. Nevertheless, not all the tests may be adequate for the present research. It is the case of Dixon's test, which is used for detecting small numbers of outliers (R. D. Gibbons, 1994) in small sets of data, usually comprising less than twenty-five observations. The Grubbs' test is one of the most used for outliers and has therefore been employed in the present research.

Known as the maximum normalised residual test, the Grubbs' test assumes that data can be reasonably approximated by a normal distribution. Since this condition is observed in the models of the present research, Grubbs' test can be therefore applied. This test detects one outlier at a time. In case of multiple outliers, it becomes necessary to delete the single outlier detected and to run again the Grubbs' test. This procedure is to be repeated until no outliers are detected. The Grubbs' test p-values for this thesis are shown below in Table 7.4.[254] In Appendix K, are shown estimates of the mean and standard deviation (sigma), in Fig. K.3 and Fig. K.4, which will be examined together with estimates designed to be resistant to outliers, shown below in Table 7.4.[255]

[254] Grubbs' test is not suitable for samples of six or less observations.

[255] StatPoint Inc. (2006).

Table 7.4 Outliers diagnostics

	Hypothesis One				Hypothesis Two	
	Quarterly	**Monthly**	**Weekly**	**Daily**	**Quarterly**	**Monthly**
Trimmed mean‡	-0.00061	2.12384	-0.82472	-0.19440	0.58428	-0.27537
Winsorised mean	0.00037	1.83076	-1.10106	-0.14799	-0.00327	-0.24357
Winsorised sigma	0.03453	25.8678	17.5436	6.53157	14.2055	3.34857
Lower limit†	-0.01024	-8.84696	-4.43186	-0.69657	-4.3751	-1.6258
Upper limit†	0.01100	12.5085	2.22973	0.40057	4.36854	1.13865
Grubbs' test	3.04919	2.92824	3.03493	4.43421	2.96044	2.40341
	0.08944	*0.06196*	*0.32402*	*0.00553*	*0.12587*	*0.43466*

P-Values in italic.

‡ Trimming: 15.0%.

† 95.0% confidence intervals for the mean (windsorised).

Using equation (19) as an example of how to read Table 7.4, together with other statistics available in Appendix K, Panel A in Fig. K.3, provides the values of the sample mean and sigma for residuals: 0.00000462 and 24.53, respectively. As shown in the table above, the corresponding Winsorised estimates, in which 15.0% of the largest and smallest data values are replaced by values from the interior of the sample, are 1.83076 and 25.8678, respectively.[256] The impact of the Winsorised estimates on the confidence interval for the mean, -8.84 and 12.50, is therefore not significant. This finding extends to the remaining models.

Table K.1 and Table K.2 also exhibit other studentised values for residuals. Studentised values without deletion measure how many standard deviations each value is from the sample mean of the residuals. A graphical observation is made possible in Fig. K.3 and Fig. K.4. Continuing with equation (19) to illustrate the examination procedure, the most extreme residual is that in row 4, which is 2.92824 standard deviations from the mean (vid. Table K.1). Since the

[256] StatPoint Inc. (2006).

P-value for Grubbs' test is greater or equal to 0.05, that value is not a significant outlier at the 5% significance level, assuming that all the other values follow a normal distribution (vid. Table 7.4).

Confirming early indications, apart for the model using daily data, Grubbs' p--values are greater or equal to 0.05 for all remaining models. This means that Grubbs' test did not consider that significant outliers exist at the 5% significance level, assuming that all the other values follow a normal distribution. In Table K.1 and Table K.2, are displayed similar scores for unusual residuals after deleting each point one at a time when computing the sample statistics, and when the mean and standard deviation are based on the median absolute deviation (MAD).[257] Values the modified MAD Z-scores greater than 3.5 in absolute value may well be outliers. Again, only the model using daily data exhibits significant outliers, with five modified scores greater than 3.5. As the plot in Fig. K.3, Panel C, also points to the existence of several outliers for the model using daily data, some of which exceeding the extreme 4 sigma cutting-point, the possible effects of such outliers are to be studied in the next section of this thesis.

influential points:

High influential points are data points whose inclusion or exclusion result in significant changes in the fitted model (Makridakis et al., 1998). Although not so *mediatised* as outliers, high influential points have an impact on the regression analysis that can prove enough to shift the regression direction.[258] Due to this possible influence power on the regression result, it is therefore relevant to identify unusual data that might have skewed the regression results obtained in this thesis.

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[257] StatPoint Inc. (2006). Vide modified MAD Z-scores in Table K.1 and Table K.2.

[258] The distinction between outlier and influential point is not clear all times, as sometimes influential points are indistinctly mentioned in literature as being outliers. Nevertheless, since there is literature which separates both concepts, this thesis also makes the due distinction between concepts and related tests, even if such differentiation can be considered arbitrary, at times, by some authors.

There are several measures for detecting influential data points, being Cook's D and DFITS some of the most commonly used.[259] These measures combine information on residuals and leverage. Although they scale differently, they do provide somewhat similar results.

Cook's D test compares all regression coefficients simultaneously. The lowest value that Cook's D can assume is zero. The higher Cook's D value is, the more influential the observation is. Montgomery et al. (2001), suggest that an observation with a Cook's D greater than 1 can be a potential high influence point. For large samples, values greater than $4/n$, being n the total number of observations, can be considered as influential.

DFITS is a statistic which measures how much the estimated coefficients would change if each observation would be removed from the data set (StatPoint Inc., 2006). In terms of rule of thumb, an observation can be considered to be influential if DFITS values are greater than ± 1, in case of small-medium datasets. Unlike Cook's D, DFITS can be either positive or negative. Numbers close to zero represent points with none or small influence. As for Cook's D, this general rule of thumb depends on the number of observations used. A broader conventional cut-off point for DFITS is $2*sqrt(k/n)$, being k the number of predictors (Belsley et al., 1980).

Other measures include leverage and the Mahalanobis distance, which are used together with DFITS. According to StatPoint Inc. (2006), leverage is a statistic which measures how influential each observation is in determining the coefficients of the estimated model. As a general rule of thumb, a point with a leverage value greater than $(2k+2)/n$ should be examined. The Mahalanobis distance is related to leverage. It measures the distance of a data point from the centroid of a multivariate dataset which is $n-1$ times the leverage of that data point.

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[259] DFITS is an acronym for "Differences in the FITS of an examined model". It is also referred to in some literature as DFFITS.

In Table K.3 and Table K.4 the diverse statistics allowing to measure and to identify possible influential points on regression coefficient estimates are shown. The tables list all observations which have leverage values greater than 3 times that of an average data point; and/or which have unusually large values of DFITS (StatPoint Inc., 2006).

For the model used to test hypothesis one and using monthly data, there are no data points with more than 3 times the average leverage, which is 0.257143. However, there are 6 data points with unusually large values of DFITS. Cook's D values are smaller than 1, but greater than 0.111(1), which corresponds to the broader cut-off point of 4/n. For the model using weekly data, there is one data point with more than 5 times the average leverage, 0.0645161. There are also 9 data points with unusually large values of DFITS and Cook's D. For the model using daily data, there are 49 data points with unusually large values of DFITS. Furthermore, there are 32 data points with more than 3 times the average leverage, 0.0153649, and 7 points with more than 5 times. The existence of such a large number of unusually outsized values requires some further examination to determine how much the model would change if they were not present. Finally, the model using quarterly data has 4 data points with unusually large values of DFITS and Cook's D, one of which exceeding 3 times the average leverage.

Regarding the models used to test hypothesis two, there are no data points with more than 3 times the average leverage, although there are several data points with unusually large DFITS and Cook's D values.

In resume, only a model includes outliers, but all datasets include influential points. Nevertheless, the model that raises more meaningful concerns is the one using daily data, as it not only includes several influential points, but also outliers as well. Since this thesis has adopted the view that data should be used as raw as possible, avoiding the elimination of unusual data points or complex data smoothing procedures, in face of the facts presented in this section, it

becomes necessary to examine whether the models would change if such outliers and influential points were not present. The influence of these data points will then be subject of examination in the next section, together with other sensitivity analyses of interest for this thesis.

7.7.4 Sensitivity analysis

The concept of sensitivity analysis has been evolving, but it can be said that it is mostly concerned with studying and measuring the effect of a given input in a given output of a mathematical model (Saltelli et al., 2004). It is often performed using regression techniques (Saltelli et al., 2004 :42), and its importance is demonstrated by its widespread use in the literature using mathematical modelling, including in M&A research (e.g. Louis, 2004; Weber, 2004).

The purpose of sensitivity analysis in this thesis is twofold. On the one hand, its rationale comes from the importance of performing tests to assess the importance of the event variables in different time and statistical significance frames. On the other hand, by the means of robustness checks, it aims to measure the possible influence of outliers and influential points on stepwise backward regression procedure, which may have resulted in skewed models and in a biased elimination of variables.

The sensitivity analyses are focused only on the model using daily data, because: i) the comprehensive set of diagnostic tests performed did not indicate any substantial possibility of misspecification for the remaining models; ii) apart from the model using daily data, there is a small number of outliers and a relatively low number of influential points, being this particularly true for the models using monthly data; and, iii) the daily data sample is the only one

allowing the construction of several subsamples sizeable enough to run regressions testing the existence of any affects in the very-short term.[260]

extreme observations:

It has been mentioned earlier that the use of daily data results in additional outliers in the models, at least when comparing with models using larger aggregation periods, such as the case of models using weekly, monthly, and quarterly data. Obviously, the use of daily data increases the randomness and is more likely to generate extreme observations, therefore possibly reducing the quality of the statistics.

Despite all efforts made in order to fit the models as best as possible, it is not possible, however, to capture entirely the effects of abnormal situations. In some extreme conditions, they can even lead to a statistical validation failure.

Following the identification of abnormal observations, as shown previously in the previous section and in Appendix K, several outliers and influential points were removed from the data sets, and new regressions were run. An extract of one of the alternative regressions run is shown in Appendix L. Since the original regression has four residuals with sigma values higher than 4, they have been eliminated as shown in Fig. L.2 (the four observations removed are shown as crossed in the plot). This elimination proved not only effective in terms of cleaning data from outliers, as it also observed the generic regression model assumptions. Nonetheless, some high influential points remained, or emerged, in the model.[261] As shown in Fig. L.1, despite the elimination of the 4 major outliers, the Box-and-Whisker plot continues to identify several extreme points which indicate the possible existence of outliers. However, the Box-and-Whisker

[260] Although not shown in this thesis, several sensitivity analyses were performed for the remaining models, including influential points' elimination, and data trimming. Such alternative analysis, which included different time frames of analysis for the 1994-2008's sample, neither changed significantly any regressions results nor changed the event variables elimination status.

[261] Some data points are simultaneously outliers and high influential points.

plot identified "mild" outliers only, reinforcing the unlikelihood of the existence of "extreme" outliers.

The removal of the most extreme observations was followed by further eliminations of influential points. The regression estimates and the tests result of such alternative regressions provided similar results, and did not change meaningfully the initial conclusions drawn from the original models.

non-trading days and reduced trading days:

In order to assess any possible improvement of the quality of the dataset used, a set of *non-conforming* situations, which were identified earlier in this thesis, were also subject to eliminations. Such eliminations will enable to simulate whether the event variables could be statistically significant under different datasets arrangements.

In the early stage of the models' development, M&A deals announced during weekends were subject to elimination from data series used in the models using daily data, because weekends are non-trading days. This elimination was also convenient from a statistic point of view, because it allowed addressing the issue of autocorrelation in the residuals, which was detected when variables including weekend data were used in seminal regressions.

Other non-trading days occurring during weekdays, resulting from holidays and extraordinary events, were left in the models, being treated with dummy variables. A similar treatment was given to reduced trading days, like the case of extended weekends. However, in spite of these situations being treated by using dummy variables, it is not possible to assure that the correspondent effects were captured, and therefore several subsamples were prepared to test the possible impact caused by the presence of these observations in the regressions.

Table 7.5 Resume of samples for sensitivity analysis

Sample Description		Number of deals		Number of days	
2000-2002 completed M&A deals			19,758		1,096
Less	Weekends	(481)		(314)	
	Non-trading days (ordinary)	(207)		(26)	
	Non-trading days (9/11 WTC)	(25)		(4)	
	Reduced trading days	(63)		(8)	
	Holiday seasons	(36)	(812)	(3)	(355)
Smallest sample for sensitivity analysis			**18,946**		**741**
	Résumé of samples				
Sample before sensitivity analysis			**19,277**		**782**
Removed	Non-trading days (ordinary)		19,070		756
	Non-trading days (abnormal)		19,045		752
	Reduced trading days		18,982		744
	Holiday season effects		**18,946**		**741**

Source: SDC Platinum (Thomson Financial, 2006).

As shown in Table 7.5, four subsamples were arranged from the original sample of 19,722 M&A deals and 782 days. The smallest sample does not include any non-trading, abnormal, or reduced trading day, and it is composed by 18,946 deals and 741 days. The regression model estimations and tests results are shown in Table L.1. The adjusted R-squared value is 51.03%, which compares with the original model value of 57.08%. Nonetheless, unlike the original model, all autocorrelations and partial autocorrelations values are within the 95% probability limits.[262]

[262] Vid. Table L.2 and Table L.3, and also Fig. L.3 for a visual examination.

Table 7.6 Regressions' sensitivity to abnormal and non-trading day's removals

Eliminations	*Original Sample*	*Non-trad. Ord. days*	*Non-trad. 9/11*	*Reduced trading*	*Holiday. seasons*
Number of days	782	756	752	744	741
Adjusted R^2	57.08	53.60	52.73	51.37	51.03
Durbin-Watson D	2.006	2.052	2.049	2.031	2.035
P-value	*0.463*	*0.237*	*0.249*	*0.333*	*0.315*
No. of variables entered	15	14	14	14	13
No. of variables selected	11	10	10	10	9

The results of the stepwise regressions with backward selection employing the subsamples exhibited in Table 7.5 are shown in the table above. The elimination of sets of observations from the original sample resulted in a decrease in the number of dummy variables possible to be utilised: following the elimination of ordinary non-trading days it was not possible to use anymore the variable *Hol*; and following the remaining eliminations it was no longer possible to use the *HS_Ext* variable. As the number of observations used was decreasing, the adjusted R-squared and the number of variables selected by the backward elimination procedure were also being reduced. However, the reduction in adjusted R-squared was not significant, and the variables left in the model by the backward elimination remained basically identical for all subsets tested. Although statistics for the regressions run are not shown in detail, one can ensure that the basic regression assumptions were observed.

The results obtained proved that the dummy variables that have been constructed to capture seasonality and abnormal events worked well, as they seem to have reasonably captured the pattern of M&A activity. In fact, not only the use of dummy variables increased the predictive power of the models, as its use did not result in biased regression results, since the regression model assumptions were observed. This finding reinforces the validity of the event

variables elimination, corroborating the non-rejection of the research hypotheses in the null form.

alternative event windows:

The use of two samples covering different sets of data, from 1994 to 2008, and from 2000 to 2002, was justified earlier in this thesis. Regarding the examination of possible short term impacts, the definition of a period of study of three years was discretionary, even if supported by reasoning, as mentioned before in this thesis. Therefore, it can be recognised that the selection of this event window of [-18; +18] months may be regarded as somewhat arbitrary.[263] Moreover, there is always the possibility that the selection of other periods of study could result in different findings. Therefore, using the original sample for the model using daily data, other event windows were also controlled, covering shorter periods, namely: [-12; +12] months, [-6; +6] months, [-3; +3] months, [-1; +1] months, [-2; +2] weeks, and [-1; +1] weeks.

Table 7.7 Sensitivity analysis using alternative event windows

Event windows	**[-12; +12] months**	**[-6; +6] months**	**[-3; +3] months**	**[-1; +1] months**	**[-2; +2] weeks**	**[-1; +1] weeks**
Number of days	520	261	130	43	20	10
Adjusted R^2	53.94	51.57	66.12	54.39	69.06	96.14
Durbin-Watson D	1.970	2.031	2.008	1.929	1.999	2.788
P-value	*0.366*	*0.601*	*0.519*	*0.419*	*0.265*	*0.359*
No. of variables entered	15	15	14	13	13	8
No. of variables selected	11	8	7	4	7	6

Although not shown in Table 7.7, the regression results for the alternative regressions covering shorter event windows, continued to exclude the

[263] This is why a larger period of 15 years was also examined, as discussed before.

intervention variables. The adjusted r-squared values continue to be significant, particularly in very short-term event windows.

The systematic elimination of intervention variables in different testing contexts may be justified by the fact that two of the most abnormal days are not included in the samples for the model using daily data. As examined in chapter 4, the Saturday before the effectiveness date of the new M&A accounting standards clearly recorded an abnormal level of M&A activity, which would only be surpassed in dimension by the immediately following Sunday, the first day of the new accounting rules. Since weekends were eliminated from datasets, it would be therefore relevant to check whether the *Event* variable could be selected by the regression models, in case the 1 July 2001 weekend would be considered. Indeed, one could expect that, at least in short-term event windows, the inclusion of the event weekend could have a significant predictive power.

Similarly to the event windows shown in Table 7.7, other datasets were prepared including weekends, assuming market variables constant values during weekends. The regression results for the shortest event window examined, [-6; +6] days, included for the first time the *Event* variable, with a P-value of 0.0441.[264] However, in larger periods, the intervention variables continued to be eliminated. Therefore, it is possible to conclude that the impact of the new business combinations accounting rules on the M&A activity was weakly perceived only at the *micro*-term level, at best.

alternative significance levels:

Every result shown before was produced using the backward regression with variables elimination at the 0.05 level. In this final sensitivity analysis stage, it is verified whether any event variable could be considered using different thresholds, namely at a tighter 99%, and at a stretched 90% confidence level.

[264] Similarly to the methodology used by Branch et al. (2001), which added the M&A activity occurred during the weekends to the immediately following trading day, alternative regressions were run. Despite the adjusted datasets included 95 deals in the first post-event day, 2 July 2001, the event variables continued to be eliminated in very short-term regressions.

When the confidence level was raised to 99%, every event variable was eliminated, regardless the context of sensitivity analysis examined in this thesis. For the 90% confidence level, i.e., when the level of confidence defined for a variable to enter in the final model was reduced to 90%, it was registered a natural increase in the number of variables selected. Nevertheless, the event variables continued to be excluded, except in a few rare occasions.

The finding that even at a relaxed significance level the intervention variables continued to be eliminated in most situations, reinforces the previous finding that the accounting changes did not produce a significant impact on the M&A activity.

7.7.5 Forecasting model validation

In tandem with the diagnosis performed in the multivariate analysis section, it is also relevant to assess the appropriateness of the regression models, by means of measuring its forecasting accuracy. If a regression model is adequately fitted, and complies with the assumptions of regression with time series, but has a low predictive power, it will not be, therefore, of great usefulness. This is the main reason why it is pertinent to validate the models from a forecasting point of view. In the present research, this validation is to be done exclusively in the model using daily data, since this model is the one which uses the largest number of observations. Furthermore, this is the only model that uses a dataset including outliers, and also significant number of influential points, deserving therefore more attention, as pinpointed before.

In forecasting, accuracy often means goodness-of-fit, and it refers to which extent the regression model can reproduce the data already known (Makridakis et al., 1998). Being the forecast error the difference between an observation for time period t and the forecast for the same period, there are a number of standard statistical measures available for its analysis. It is the case of measures

such as the mean error (ME), the mean absolute error, the mean squared error (MSE), the mean percentage error (MPE), and the mean absolute percentage error (MAPE).

The Theil's U inequality index is a statistical measure largely used for assessing the forecasting quality. It measures the degree to which one time series differs from another. In the present case, it compares the forecasts of the model using daily data with a naïve forecast, more precisely a random walk model. The U statistic ranges can be interpreted in a simple way. Whenever U equals one it means the forecasting power for the model is as good as for the naïve model. For values greater than one, it suggests that the fitted model forecasts are useless, since the use of a simple naïve model would produce a better forecast. Finally, if the U value is smaller than one, it means the model produces a relatively good forecast, as its predictions are better when compared to the ones that would be obtained using a naïve procedure.[265]

With the purpose of validating the model using daily data, the accuracy of an out-of-sample forecast has been measured. Following the procedure as described in Makridakis et al. (1998: 46), the data was divided into an "initialization" set and into a "holdout" set, corresponding to the last fifty observations. The parameters were estimated from the initialisation set, while forecasts were made for the holdout set, or "testing" set. As the holdout set does not belong to the fitted model, the forecasts produced are genuine, since they do not use any of the real observations. In order to produce forecasts, fifty regressions were run, using t-1 to t-50 observations, and a holdout set of fifty t+1 predicted values, one for each regression, was assembled. Finally, the predicted values were compared to the real observations to have the "real" forecast errors. Every accuracy measure was computed for the errors in the holdout set only, being exhibited below in Table 7.8.

[265] The smaller the U value, the better the forecasting technique in relation to the naïve method (Makridakis et al., 1998: 50). For more information about Theil's U statistic see e.g. Makridakis et al. (1998), or Theil (1966) himself.

Table 7.8 Out-of-sample accuracy measurement

Model	ME	MAE	MSE	MPE	MAPE
Daily data	-1.48576	5.433921	54.11527	-17.84%	33.31%
Naïve	0.38	6.74	65.66	-28.88%	61.10%
Theil's *U*	**0.593949**				

Measures computed using a holdout set of 50 observations.

From the comparison of the model developed to test hypothesis one with the random walk method, one can conclude that the model using daily data presents better statistical measures and a much better predictive power. In fact, although the naïve model exhibits a mean error closer to zero, all the remaining standard statistical measures of forecasting errors, MAE, MSE, MPE, and MAPE, present lower values for the model of equation (21). Since these measures are the most relevant ones, one can firmly argue that the model using daily data has a much lower overall forecast error than the naïve model.

This finding is corroborated by the Theil's U statistic value, 0.59, which is much lower than one, consequently meaning that the forecasting power of the model using daily data is clearly superior to the one of the naïve model. In resume, from the analysis of the forecast errors, together with the Theil's U inequality index, it can be concluded that the model using daily data has a reasonably good predictive power.

7.8 Conclusions

Following the development of the research hypotheses in chapter 4, and the presentation of the sample datasets in chapter 6, the main research testing was conducted in this chapter, by means of stepwise backward regression with time series. The results obtained were subject to in-depth robustness checks and statistic validations in order to minimise the possibility of comprising significant bias. Overall, the tests did not reveal problems regarding serial correlation and

heteroscedasticty. Even if some departures from normality were identified, as shown by statistics such as skewness, they did not violate the overall regression analysis assumptions. Such departures from normality could have been corrected through the elimination of outliers and influential points. However, since the inclusion of outliers in the models did not violate the regression assumptions and did not produce any material changes in the regression estimations, it was decided to keep the original data unchanged, relying in dummy variables to capture as much as possible any abnormal effects.

The main finding of this chapter is that the intervention variables were not selected by any model, to the detriment of other economic-financial and time variables, suggesting that the changes in business combinations accounting did not produce a significant impact on M&A activity, both in the medium and long terms. Therefore, the research hypotheses could not be rejected in the null form. The evidence obtained from the diverse sensitivity analyses conducted corroborated the non-rejection of the hypotheses, also suggesting the inexistence of impacts in very-short and in the short run.

The only significant evidence contrary to the main finding was found in sensitivity analysis, where *Event* variable was selected for one model, but only in a particular situation and using a very-short event window of [-6; +6] days. The discussion started earlier in this thesis about *collateral* effects resulting from the M&A accounting changes follows in the next chapter.

Chapter 8 Discussion and Interpretation

8.1 Introduction

This thesis relates to different strands of research from accounting, finance, and economics. More precisely, this research examines several issues in financial reporting, namely the ones concerning accounting regulation and accounting choice, extant with lobbying, as discussed earlier. Of particular interest is the issue of accounting choice, which has been tested in order to examine whether the constraint placed in business combinations accounting produced significant economic consequences, namely on M&A activity.

In the context of accounting choice in business combinations, two main issues were examined: i) pooling of interests versus purchase method, which has been a perennial source of controversy until recently, as evidenced by the sizeable amount of related literature produced in the past decades; and, ii) impairment testing versus amortisation of purchased goodwill and other intangible assets, which became a focus of discussion in business combinations after pooling of interests option was discontinued by the FASB, a move that would also be followed soon afterwards by the IASB.

The main issues of accounting choice in business combinations accounting were therefore examined in this thesis, although not necessarily fully tested, as discussed in chapter 5. The interest and usefulness of further testing is to be

discussed in this chapter, in connection with some final remarks to be made in the concluding chapter.

Furthermore, this thesis also deals with one of the major issues in finance research, which is the absence of a comprehensive theory explaining the occurrence of M&A waves. Although not particularly concerned with M&A waves itself, this research is related to the pattern of the M&A activity, and therefore to diverse strands of literature in M&A, like research on M&A completion and cancelations, also being relevant the contributes from behavioural finance. Concurrently, this thesis is also related to economics, as diverse modelling developments on M&A's activity and waves come from this area of research. Additionally, this thesis uses macro and microeconomic factors, together with other exogenous and endogenous factors, in order to model the M&A activity according to the purposes drawn in the research hypotheses chapter.

The development of specific models to test the hypotheses designed for this thesis has been undertaken in the previous chapter, which has also examined the results obtained. As for any testing, there is always room for some further adjustments and improvements. They are therefore to be examined in this chapter, being the limitations discussed in chapter 9.

Finally, the globalisation of markets and financial reporting requires any comprehensive research in accounting, finance, or economics, to include also a global angle. Accordingly, this chapter is particularly focused on relating the research findings to different international scenarios, with particular emphasis to Europe, and to other countries using or considering adopting IASB's standards.

8.2 Accounting regulation and accounting choice: an international perspective for business combinations

As discussed earlier, the reactions to FASB's proposals on new business combinations accounting suggested that its adoption could constrain M&A announcements and affect the completion of M&A deals. The opposition to the first exposure draft can be regarded as normal, as FASB simply wanted to eliminate the accounting choice in business combinations, by discontinuing pooling of interests. Moreover, the FASB proposed reducing the maximum period amortisation of goodwill and other intangible assets from 40 to 20 years. This early proposal, that would most certainly affect companies using or intending to qualify for pooling of interests, was particularly penalising for companies engaged in M&A deals involving substantial values of goodwill and other acquired intangible values. It could be even regarded as a double penalisation. On the one hand, with the pooling option elimination, every company involved in a M&A deal with an acquisition price superior to the total value of assets and liabilities measured at fair value, would now be necessarily forced to recognise goodwill. On the other, as shown in chapter 2, since the majority of companies amortising purchased goodwill were doing so in around 40 years, a substantial number of companies would now have to record higher amortisation charges, consequently affecting negatively their reported earnings.

These earlier proposals were regarded as a menace for companies that were using pooling to avoid recognising goodwill whenever accounting for M&A deals. Opposition from relevant sectors of activity was therefore inevitable, and could ultimately jeopardise the proposed changes in business combinations accounting. However, besides backing its proposals arguing from a technical standpoint - supported by feedback obtained from invitations to comment and public hearings - the FASB had another powerful argument on its side: the need for an international framework for accounting extant with globalisation of business and markets. It is important to recall that the FASB compromised and worked together with other standard-setting bodies worldwide in order to achieve international convergence on the methods of accounting for business

combinations (vid. e.g. Paragraph B9, SFAS 142, Financial Accounting Standards Board, 2001e; G4+1 (Organization) & International Accounting Standards Committee, 1998). In fact, it is important to recall that the works on a harmonised accounting for business combinations were made under the auspices of G4+1 Organization, having the IASB as a special observer.

Unsurprisingly, as a way to legitimise and reinforce its standard-settings options, the FASB openly claimed the need for international convergence in business combinations accounting. This was made clear in official statements, such as in SFAS 142 (Paragraph B49, Financial Accounting Standards Board, 2001e):

> "The Board observed that Opinion 17 required intangible assets to be amortized over their expected useful lives; however, amortization periods were limited to 40 years. The Board noted that standards elsewhere that address intangible assets are generally similar. However, in some cases, the maximum amortization period is less than 40 years, with 20 years frequently being the presumed or absolute maximum.".

The FASB inclusively did refer to accounting standards from other standard--setting boards, such as the UK ASB, or the international IASC, in order to illustrate and to support its basis for conclusions on M&A GAAP's changes (SFAS 142, Paragraph B49, Financial Accounting Standards Board, 2001e):

> "The Board noted that both FRS 10 and IAS 38 have presumptive maximums of 20 years. However, FRS 10 permits some intangible assets not to be amortized at all, provided that (a) the durability of the asset can be demonstrated and justifies an amortization period longer than 20 years and (b) the asset is capable of continued measurement so that annual impairment reviews can be conducted. IAS 38 requires all intangible assets to be amortized but does not specify a maximum amortization period.".

As discussed earlier in this thesis, following a period of intense lobbying, including not only corporate lobbying but also congressional pressure, the FASB

would eventually drop the proposal of amortisation of purchased goodwill and other intangible assets.[266] However, FASB's position on pooling of interests method elimination would not change. As pooling method permission was discontinued in the USA, the path for an international convergence in business combinations accounting was finally set.

Table 8.1 Accounting for business combinations worldwide in the 1990's

	Pooling method if uniting of interests	**Purchase method if uniting of interests**
Australia	Not permitted	Required
Brazil	Not permitted	Required
Canada	Required	Not permitted
France	Permitted	Preferred
Germany	Permitted	Permitted
Italy	Permitted	Permitted
Japan	Not permitted	Required
Netherlands	Permitted	Permitted
Portugal	Permitted	Permitted
Spain	Permitted	Permitted
Sweden	Required	Not permitted
Switzerland	Permitted	Permitted
United Kingdom	Required	Not permitted
United States	Required	Not permitted

Source: adapted from Radebaugh & Gray (1997: 254).

As shown in Table 8.1, the options concerning the pooling of interests utilisation were very much heterogeneous at worldwide level by the mid-1990's. Most countries allowed the use of both pooling and purchase methods in case the M&A deal could be qualified for a uniting of interests, in spite of pooling of interests being considered as the most *appropriate* method for a uniting of ownership interests of two or more companies, by means of exchange of equity

[266] See e.g. Beresford (2001) and Zeff (2002).

securities. However, in countries such as Australia, Brazil, and Japan, it was not allowed to account for uniting of interests using pooling of interests, as it was mandatory to use purchase method instead. Conversely, in Canada, Sweden, the UK, and in the USA, pooling of interests was mandatory for uniting of interests.[267] Finally, in France the purchase method was preferred for uniting of interests, but the use of pooling of interests was also permitted.

The need for convergence in business combinations accounting was becoming increasingly obvious. In a time distinguished by increasingly unrestrained globalisation, financial reporting has to provide information for international users (e.g. Ball, 2006). For globalised users, such financial information has to be internationally intelligible and preferably harmonised, in order to be effectively

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[267] While pooling of interests method was required for uniting of interests in the USA, and in some other countries, purchase method was required for all remaining business combinations. Therefore one could argue that accounting choice in business combinations did not exist in these countries. Indeed, AICPA's APB stated in APB Opinion 16 that (Paragraph 8, American Institute of Certified Public Accountants; Accounting Principles Board, 1970b):

> "The Board concludes that the purchase method and the pooling of interests method are both acceptable in accounting for business combinations, although not as alternatives in accounting for the same business combination. A business combination which meets specified conditions requires accounting by the pooling of interests method. A new basis of accounting is not permitted for a combination that meets the specified conditions, and the assets and liabilities of the combining companies are combined at their recorded amounts. All other business combinations should be accounted for as an acquisition of one or more companies by a corporation.".

However, as discussed in earlier chapters, companies managed to qualify M&A deals to uniting of interests, distorting APB Opinion 16 intentions (see e.g. Aboody et al., 2000; Ayers et al., 2002; Linsmeier et al., 1998; Lys & Vincent, 1995; Robinson & Shane, 1990; Walter, 1999; Weber, 2004). In fact, often pooling and purchase methods were effectively "alternatives in accounting for the same business combination", and therefore accounting choice was no less than a common reality in M&A accounting. So common that could be inclusively *purchased*, as illustrated by the acquisition of NCR by AT&T, were it is suggested by Lys & Vincent (1995) that AT&T incurred in at least $50 million of additional costs to qualify the deal as a uniting of interests (vid. chapter 2).

useful. Additionally, transnational companies were also interested in reducing the costs of preparing financial information. Therefore, international accounting convergence was critical in order to reduce the need for reporting differently according to different domestic GAAP sets, an undesirable situation often resulting in the need for numerous GAAP reconciliations by transnational companies.

One example, which became a "classic" case study in international accounting convergence was Daimler-Benz. Due to strategic, but also financial reasons, Daimler-Benz became the first German company to be listed in the NYSE in 1993. However, this dual listing would also result in a dazzling dual financial reporting. In the first year reporting according to the US GAAP, by means of reconciliation, Daimler-Benz revealed a translated net loss of 1,839 million Deutsch Marks (DM), while concurrently it reported a profit of 615 millions DM under German GAAP (L. H. Radebaugh et al., 1995). This situation would continue to be repeated, as Daimler-Benz profits under German GAAP were systematically reduced following reconciliation with the US GAAP (Roberts et al., 1998). However, in 1995, when Daimler-Benz reported a net loss for investors in Frankfurt a curious reversal would occur, as barely the same figure would be reported for investors in New York - but a net profit instead. The differences of reconciliations from German and the UK GAAP to the USA GAAP were large in some occasions, including steep variations from year to year, puzzling accounting professionals and users of financial statements (Alexander & Nobes, 2001). In 1995, Daimler-Benz ceased the reconciliation of financial statements as it ultimately decided to adopt the USA GAAP (Christopher Nobes & Parker, 2002). As situations like the one of Daimler were multiplying among multinationals, the overall reliability and usefulness of financial reporting was being increasingly jeopardised, and companies were therefore urged to enhance international accounting convergence.[268]

The use of international financial reporting standards also carries some financial benefits (Ball, 2006). Indeed, while increasing the harmonisation of the

[268] For overall international convergence of accounting practices see e.g. Tarca (2004).

interpretation of financial reporting worldwide, the analysis costs for international users are also reduced. Similarly, on the preparers' side, it also reduces the costs for multinational companies, as they no longer need to prepare different sets of financial statements under different accounting frameworks. It also reduces the information risks for investors (Ball, 2006).

Literature has increasingly been examining the adoption of international financial reporting standards. For example, Barth et al. (2008), while examining companies using IASB's accounting standards in 21 countries, found less evidence of earnings management, more timely losses recognition, and more value relevance, than in sampled companies applying the non-USA domestic GAAP, in between the pre- and post-adoption periods.

Furthermore, in many cases the adoption of the - in general - less conservative IASB's GAAP leads to an increase in firms' value. The extended use of fair value by IASB is an example (e.g. Ball, 2006). Indeed Karamanou & Nishiotis (2009), using a sample of international firms, found the existence of abnormal returns at the announcement of voluntary adoption of international accounting standards, therefore suggesting that companies can increase their market values through their choice of accounting standards.

Nevertheless, there are not only advantages and positive factors. Indeed, international harmonisation of accounting standards has both considerable pros and cons. For example, Ball (2006) refers pertinent cons, such as the fact that IASB pushed fair value accounting "too far". The use of fair value carries some issues, such as an emphasis on "relevance" to the detriment of "reliability", or the downplaying of the indirect "stewardship" role of accounting (Ball, 2006). Other cons include the fact that politics and markets continue to remain primarily local; or even concerns with the long-term undermining of IASB by politics and bureaucracy (Ball, 2006). Indeed, IASB's standards implementation raises concerns related to its uniformity when facing incentives of financial reporting preparers and enforcers, such as auditors, courts, regulators, politicians, etc., which remain primarily local (Ball, 2006). Similarly, being

aware of the lobbying and political pressures surrounding IASB (vid. e.g. Chand & Cummings, 2008; Zeff, 2002), it seems reasonable to consider the risk of its increasingly transformation in a representative, polarised, and bureaucratic body (Ball, 2006).

Finally, as discussed in this thesis, the accounting choice in business combinations can lead to considerable changes in financial reporting, exacerbating potential reporting disadvantages for international companies that do not have alternative M&A accounting methods available. Taking again the Daimler-Benz example, this firm was originally listed in Frankfurt, but in order to prepare its expansion in the USA it became listed in New York as well. Indeed, it would later integrate the North American Chrysler. Following the acquisition of Chrysler Corp., in 1998, a new company called DaimlerChrysler was formed, by means of a formal merger, which managed to qualify for pooling of interests method (Coleman, 1998). This was the case of a deal where Daimler-Benz was *de jure* merging, but *de facto* acquiring Chrysler, reshaping also the transaction in order to qualify *contra natura* for pooling.

Following G4+1 proposals on business combinations, and subsequently with the adoption of the new accounting standards in the USA, it was urged for IASC/IASB and other accounting standard-setters worldwide to move alongside with the due convergence. It was also a critical time for Europe, particularly for the EU Member Countries, as the possible adoption of IASC/IASB's standards was being discussed.

The number of different accounting practices at national level is considerable in Europe, and the accounting for business combinations provides a good example of a profusion of different methods that may be possibly used by companies in different European countries, with implications on the comparability of financial statements (Fédération des Experts Comptables Européens (FEE), 2002; Ribeiro & Crowther, 2008a).

Table 8.2 Accounting for M&A in Europe and in the USA: 1999-2000

	Pooling	Goodwill accounting treatment		
	Conditionally Possible	Write Off to Equity Allowed	Amortisation Period Limits Rebuttable†	Absolute†
Austria	No	Yes	-	None
Belgium	Yes	-	5	None
Czech Republic	No	Yes	-	5
Denmark	Yes	Yes	5	None
Finland	Yes	-	5	20
France	Yes	Yes	(20)	None (40)
Germany	Yes	Yes	20	None
Hungary	No	-	5	15
Ireland	Yes	-	20	None
Italy	Yes	Yes	5	None (20)
Luxembourg	Yes	Yes	-	None
Netherlands	Yes	Yes	5	None
Norway	Yes	-	5 (20)	None
Poland	Yes	-	5	20
Portugal	Yes	-	5	20
Romania	Yes	-	-	20
Slovenia	Yes	-	-	5
Spain	Yes	-	-	20
Sweden	Yes	-	5	20
Switzerland	Yes	Yes	20	None
United Kingdom	Yes	-	20	None
United States	Yes	-	-	40

Source: adapted from Fédération des Experts Comptables Européens (2002: 21, 27).

† Number of years. (In brackets: there are no formal limits, but tacitly amortisation should not exceed).

By the time the USA was discussing the changes in business combinations, the plethora of different accounting methods and practices for business

combinations in Europe was noteworthy. From the twenty-one European countries studied by the FEE in 1999-2000, only three did not allow the use of pooling of interests in any circumstance, so it can be argued that there was some degree of convergence regarding the allowance of alternative business combinations methods. However, in terms of purchased goodwill accounting, there were significant differences among countries. Despite amortisation being the preferred treatment, eight countries allowed write off to equity. Additionally, fifteen countries had refutable amortisation period limits, and ten countries had no absolute limits for goodwill amortisation. Furthermore, the periods of amortisation for the countries with absolute limits varied substantially.

As mentioned before in this chapter, and as discussed earlier in this thesis, the IASB followed closely the FASB's business combinations developments. Later, both boards worked together in this subject matter, in the scope of a convergence project. Accordingly, the IASB would publish IFRS 3 afterwards, in 2004, adopting also the principle that the purchase method should be applied to all business combinations. The IASB also shared FASB's views on purchased goodwill, arguing that it should not be amortised, and determining that any recognised goodwill should be carried at cost less any accumulated impairment losses, as required by IAS 36 (International Accounting Standards Board, 2004).

In 2005, IASB's standards would be enforced by the EU. If the accounting for business combinations in Europe was already a Tower of Babel, another layer of diversity would be then added following IAS/IFRS adoption by the EU countries (Fédération des Experts Comptables Européens (FEE), 2002; Ribeiro & Crowther, 2008a).[269] The adoption of international accounting standards was a relevant step towards accounting convergence in Europe, but it has also resulted in a dual accounting, with its inherent inconveniences.

Indeed, the adoption of IASB's standards resulted in a dual accounting system, in which any listed company is compelled to prepare consolidated accounts

[269] The remainder of this section is based in Ribeiro & Crowther (2008c, 2008a).

according to IASB's standards (European Commission, 2002), while the remaining firms are allowed to keep using national sets of accounting standards, which are based on the aged fourth and seventh EU directives.

More precisely, within this dual accounting system, since 2005 that listed companies ruled by the law of a Member State are required to prepare their consolidated accounts according to IASB's standards (European Commission, 2002). The matrix of possibilities has increased. Listed companies with consolidated accounts can only use purchase method, but pooling of interests continues to be allowed for the remaining companies, except in a few countries. Similarly, for companies using domestic GAAP, purchased goodwill is to be amortised, using arbitrary ceilings; or is to be written off; while for companies adopting IASB GAAP, goodwill is to be subject to impairment tests. As shown before, the discrepancy among the different national sets of GAAP in Europe is significant, and, paradoxically, the asymmetries within the European zone have been reinforced with the introduction of IASB's GAAP.

The UK is a good example of these dual accounting discrepancies. Currently, business combinations in the UK are accounted according to Financial Reporting Standard (FRS) No. 6, *Acquisitions and Mergers* (Accounting Standards Board, 1994a), FRS 7, *Fair values in Acquisition Accounting* (Accounting Standards Board, 1994b), FRS 10, *Goodwill and Intangible Assets* (Accounting Standards Board, 1997), and FRS 11, *Impairment of Fixed Assets and Goodwill* (Accounting Standards Board, 1998), which are not in conformity with IFRS 3, as pooling is allowed, and goodwill is to be amortised. The ASB keeps pursuing convergence with IASB's GAAP, and has published several financial reporting exposure drafts (FRED) in order to achieve this purpose.[270]

[270] In order to achieve a broad convergence with IFRS 3, and related IASB's standards on business combinations and goodwill accounting, like IAS 36, and IAS 38, the ASB issued several exposure drafts in 2005, FREDs 36, 37, and 38 (Accounting Standards Board. Financial Reporting Council, 2005a, 2005b, 2005c), which also include proposed amendments to FRS 2, *Accounting for Subsidiary Undertakings* (parts of IAS 27, *Consolidated and Separate Financial Statements*).

This means that business combinations accounting should be likely to change in the short term at the domestic level in the UK.

Nevertheless, as time passes uncertainty is rising, being the concretisation of the proposed changes for business combinations unforeseeable. Furthermore, this uncertainty covers the entire future reporting requirements for the UK and Irish entities. Indeed, following the issuance of a consultation paper in August 2009, the ASB announced to be discussing a possible triple accounting framework, (vid. http://www.frc.org.uk; Accounting Standards Board. Financial Reporting Council, 2009):

> "The Board is proposing a three-tier approach to developing UK GAAP converged with IFRS as follows:
>
> > Tier 1 – publicly accountable entities would apply IFRS as adopted by the EU ('EU-adopted' IFRS).
> >
> > Tier 2 – all other UK entities other than those who can apply the Financial Reporting Standard for Smaller Entities (FRSSE) could apply the IFRS for SMEs.
> >
> > Tier 3 – small entities could choose to continue to apply the FRSSE.
>
> Entities within Tier 2 and Tier 3 would have the option of using EU-adopted IFRS if they wished, and those in Tier 3 would have the option of using the IFRS for SMEs.".

Is it the case that companies in the UK may benefit from a triple accounting system? This may not be the case for business combinations accounting, as smaller companies should not need to have an adjusted accounting for M&A deals. But as convergence with IASB is being put on hold, the dual accounting in business combinations continues to be a fact in the UK.

Since only a small number of companies are listed and have to prepare consolidated accounts, and as several national sets of accounting standards continue to allow the use of pooling, this means that a very considerable number of companies are still able to utilise pooling of interests in Europe, in contrast to a few large companies that have necessarily to use purchase method and to recognise purchased goodwill. This is a relevant fact, as it materialises one of the main contributions of this thesis, as to be discussed in the final chapter.

8.3 Accounting choice in business combinations accounting and M&A activity

As discussed earlier, before FASB's changes in 2001, the managerial accounting preference in business combinations was evident: pooling of interests method was more wanted, regardless its use being conditional to its qualification as a uniting of interests (see e.g. Aboody et al., 2000; Anderson & Louderback III, 1975; Ayers et al., 2000, 2002; R. M. Copeland & Wojdak, 1969; Gagnon, 1967; Lys & Vincent, 1995; Nathan, 1988). Management seeks to maximise results, and purchase was not the best method for such aim, as it required goodwill recognition and its amortisation, with negative consequences on earnings. Indeed, for a long time that literature found that managerial discretion was used in business combinations accounting in order meet financial reporting objectives, namely to maximise reported earnings (R. M. Copeland & Wojdak, 1969).

However, this managerial appetence for pooling of interests was excessive. In fact, diverse anecdotal and empirical evidence suggested that companies could reshape M&A deals, incurring in extraordinary expenses, and even paying higher acquisition premiums, simply to meet APB Opinion 16 pooling of interests criteria (see e.g. Aboody et al., 2000; Ayers et al., 2002; M. L. Davis,

1990; Hopkins et al., 2000; Linsmeier et al., 1998; Lys & Vincent, 1995; Robinson & Shane, 1990; Walter, 1999; Weber, 2004).[271]

Despite the apparent advantages of pooling over purchase method, several studies detected that pooling method resulted in artificial arrangements on companies' financial statements, distorting the corresponding financial analysis (Jennings et al., 1996; Vincent, 1997), while others documented that the announcement returns were lower for pooling companies when compared to companies using purchase method (M. L. Davis, 1990; Hong et al., 1978; Martinez-Jerez, 2001).

According to Fields et al. (2001), whether shareholders benefit from managerial discretion and whether the benefits outweighed the costs is not clear. However, according to Louis (2004), literature suggested that pooling deals are "bad investment decisions" because managers miss the focus on cash-flows, as they are more concerned with reporting increasing earnings, and also because they constrain the management's ability to sell acquired assets after the acquisition (Lys & Vincent, 1995; Robinson & Shane, 1990). Unsurprisingly, Martinez-Jerez (2003) found that a stronger negative market reaction to pooling M&A deals is linked to acquirers that have poor corporate governance.

On the one hand, pooling seemed to underperform purchase method, but on the other hand, its defenders raised their arguments loud when the FASB proposed to eliminate pooling. Apparently, using the theoretical model of Watts & Zimmerman (1990, 1978) for the understanding of the developments on M&A accounting, among pooling supporters were certainly managers more concerned with their contracts, than with any economic consequences from the forthcoming changes in M&A accounting, as shown by the fierce lobbying undertaken (Zeff, 2002). Watts & Zimmerman (1978) suggested that accounting choice may affect shareholders' wealth in case managers' compensation contracts are coupled to financial reporting performance. Indeed, while

[271] Conversely, Nathan (1988) did not find higher acquisition premiums for companies applying the pooling of interests method.

examining specific characteristics determining which business combinations accounting method is selected by the management, the literature found that the percentage of insiders' ownership, and accounting-based compensation plans play a significant role (Dunne, 1990). In resume, it may be suggested that much of the lobbying surrounding the business combinations accounting changes may have been related to executive interests. Furthermore, such interests appear to have been safeguarded with the replacement of purchased goodwill amortisation by impairment tests. The financial industry constitutes a good example. On the one hand it developed a very active lobbying action on the FASB and on the Congress of the USA, but on the other it was one of the least impacted industries by the new accounting rules, with average values of purchased goodwill and other intangibles below the mean. Why to bother then, why to be more actively lobbying than other industries, such as consumer discretionary, or industrials, which have been much more impacted? Perhaps because besides the interest on the M&A fees that could be lost due to a reduction on the number of M&A deals, were also contractual relationships that were being jeopardised.

research findings related with literature pre-changes in M&A accounting:

The results obtained from testing the research hypotheses, as shown in chapter 7, corroborate the overall findings from literature on accounting choice in M&A pre-new business combinations accounting. As discussed, this strand of literature pointed out disadvantages in business combinations accounting choice, by means of examining the existence of pooling of interests as an *alternative* method. By suggesting that the changes in M&A accounting, namely the discontinuation of pooling of interests method, did not result in significant impacts on M&A activity, the findings of the present thesis also support the firm position of FASB in eliminating the accounting choice in business combinations accounting.

Furthermore, evidence collected from questionnaires and annual reports of S&P 500 companies also corroborates the findings of the literature existing before pooling of interests elimination. Some survey respondents expressed serious

concerns about the new standards. Additionally, evidence from S&P 500 companies' annual reports made it possible to conclude that had SFAS 142 been made effective in 2000 and diluted EPS from S&P 500 companies would have increased 20.7% on average. Similarly, adoption of SFAS 142 in the fiscal year 2001 would produce an even more significant average increase of 29.6% in diluted EPS.

Some authors have anticipated or estimated similar impacts under different, but related circumstances. For example, Ayers et al. (2000), using a sample of pooling companies, estimated that EPS would have been considerably lower if purchase method had been used. By the time this study was made, purchased goodwill and other intangible assts were being amortised over a maximum period of 40 years.

The Ayers et al.'s paper is interesting because it offers a *comparable* measurement. In Ayers et al.'s study, assuming a 10-year amortisation period, the decrease in EPS would be from 8.3% in financial services, up to 42% in food, textile, and chemicals industries. Assuming a 40-year amortisation period, EPS figures would be reduced from 2.2% in financial services, up to 15.7%, in the hotel and other services industries.

As FASB dropped the initial proposal on replacing a 20-year amortisation period for impairment tests, it has reversed entirely the impact on earnings, at least in a scenario of absence of impairment losses. Comparing the initial FASB's proposal with the final provisions of SFAS 142, this outcome has resulted in a reversal of possible losses of over 15% in some industries, to average increases in earnings of more than 20%.

The indications obtained in this thesis of a possible impact on M&A activity in the IT industry also corroborates literature and public concerns of the sector due to the proposed elimination, as discussed in earlier chapters (see e.g. King, 2000; King & Kelly, 2000; *Prepared Testimony of Mr. Dennis Powell Vice President and Corporate Controller Cisco Systems*, 2000). These claims are

everything but overrated: the majority of respondents to the questionnaire from IT industry pinpointed the existence of effects from SFAS 141 and SFAS 142 adoption, and IT firms were also the most likely to be impacted by the new accounting rules among S&P 500 companies, as they were carrying the highest values of purchased goodwill in their balance sheets and could therefore be more impacted by the replacement of goodwill amortisation by impairment tests than any other sector of activity.

research findings related with literature in finance and economics: The models developed in this thesis are related to diverse literature in finance and economics, namely to the one related to M&A activity and M&A waves. Nevertheless, it was not intended to draw conclusions related to any underlying theory concerned with explaining the occurrence of M&A in waves. However, it was needed to understand the pattern of M&A activity during the period in analysis in order to develop and adequately fit the models used to test the research hypotheses.

Despite carefully fitted, the models are not free from limitations. One of these limitations is the impossibility of extending the number of variables in the models, particularly in the cases whenever data is not produced for very-short periods, such as weekly or monthly. Another limitation is related with the absence of subsamples breaking down M&A data by industry. This limitation prevented performing cross-sectional analysis, which could refine the overall finding of absence of impacts from the new M&A accounting on the M&A activity. As examined before, there are indications that M&A activity in IT industry may have suffered from a certain degree of constraint. Consequently, it would be very interesting to have M&A subsamples by industry, in order proceed with hypotheses testing at industry-level. Despite these limitations - and others that are to be discussed in the concluding chapter -, and the obvious possibilities of further adjustments and improvements, there is confidence in the models and in the results obtained in this thesis.

Following the models testing, other findings include corroboration of diverse literature on the M&A pattern activity. Overall, the signs of the variables tested were consistent with most findings from literature, apart the case of interest rates - a divergence which has been justified in chapter 7.

research findings related with literature post-changes in M&A accounting:

Following the effectiveness of the new business combinations accounting rules, the debate shifted from pooling elimination to the accounting treatment of purchased goodwill and other intangible assets. Amortisation versus impairment testing became the main issue. As examined earlier, SFAS 142 replaced amortisation of purchased goodwill and other intangible assets with indefinite useful lives by impairment tests, keeping amortisation, under certain conditions, only for goodwill and intangible assets with finite useful lives. By doing so, FASB added volatility to the financial reporting. This fact was assumed in SFAS 142. When comparing the differences between SFAS 142 and APB Opinion 17, it is stated that (Financial Accounting Standards Board, 2001e: 5):

> "Because goodwill and some intangible assets will no longer be amortized, the reported amounts of goodwill and intangible assets (as well as total assets) will not decrease at the same time and in the same manner as under previous standards. There may be more volatility in reported income than under previous standards because impairment losses are likely to occur irregularly and in varying amounts.".

Certainly there will be more volatility, one could add. Regardless the merits of impairment treatment, which screens continuously for the value of purchased goodwill and other intangible assets, whether such volatility increases the quality of financial reporting, and the usefulness of its users, is not a clear matter yet. Perhaps the best judgement will come with time, but in the meantime some literature started to examine this issue, providing some early findings.

In terms of examples of literature about impairments under SFAS 142, Hayn & Hughes (2006) questioned the superiority of impairment tests over amortisations, while Massoud & Raiborn (2003) suggested that the managerial discretion in applying the goodwill impairment tests reduces the quality of reported earnings. Massoud & Raiborn (2003) argue that SFAS No. 142 creates opportunities for earnings management, particularly in weak economic periods, where companies can undertake a "big bath", i.e., to recognise big impairment losses in a period when earnings are already negatively affected. According to the analysis made in this thesis of annual reports from S&P 500 companies, this was indeed the case in 2002, as a significant number of companies' recognised outstanding values of impairment losses under SFAS 142, therefore supporting the "big bath" earnings theory.

8.4 New M&A accounting rules and M&A activity: business as usual?

The evidence shown in this thesis suggests that the new business combinations accounting rules may have had only a limited impact on M&A activity, at very best. Following the new FASB's standards implementation, in terms of the number of companies accounting for business combinations, the figures remained stable, despite the pooling elimination and the changes in the purchase method. For example, according to the Accounting Trends & Techniques (American Institute of Certified Public Accountants, 1968-2003), in 2002, 314 of the 600 surveyed companies used the *new* purchase method to account for a business combination, versus 309 purchases and 16 pooling of interests in 2001.[272]

Additionally, there were not indications of any relevant economic effects produced by the new standards. While the neutrality of the new standards seems not to be an issue, not everything remained necessarily unchanged. Otherwise, FASB's changes would not be more than sheer cosmetic and would

[272] It is important to recall that, in 2001, pooling of interests was possible only until 30 June.

not produce any effects. Such outcome could be, perhaps, considered even to be abnormal. As Hendriksen & van Breda (1992: 242-243) note:

> "All decisions regarding accounting policy should have economic consequences. If there were no consequences, there would be no reason for policy decision. The desired consequences include an improvement in the information available to investors and other users with the result of permitting sounder economic decisions or a reduction in the information-gathering costs for users. Through the securities markets, better decisions should result in an allocation of resources closer to the optimum and an opportunity for an improvement in portfolio selections. If decisions are not altered and if information costs to users are not reduced, this is evidence that the policy decision was not desirable".

Therefore, the appropriateness of the changes in business combinations and goodwill accounting may be perhaps simply judged by the absence of significant effects. Conversely, one could argue that the accounting changes should be *useful*, resulting in *positive* effects for the users, particularly investors.

Added transparency brought by the new rules also seems an unquestionable fact, as financial reporting discrepancies between pooling versus non-pooling firms disappeared. This should have contributed to reduce the cost of financial reporting analysis, and may have also increased firms' value. In the past, analysts placed lower valuations on companies that amortised goodwill using the purchase method, rather than on companies which did not amortise goodwill using pooling, or that were preferring to write off the bid premium in the first year as in-process research and development (Hopkins et al., 2000). As a result, the pooling ban eliminates the bias that analysts may have priced into the shares of pooled companies.

Perhaps the major drawback of the M&A accounting changes is the need of goodwill impairment charges, which is linked to the assumption that companies will fairly recognise situations where M&A deals may have not meet expectations. In this case, the new rules introduce an element of uncertainty

and additional risk into future earnings estimation due to the potential occurrence of impairment surprises. Nevertheless, stock prices are not likely to decline significantly for companies with one-time impairment write-offs unless they become habitual (Hopkins et al., 2000). This was indeed the case in early 2000's, as companies *profited* immediately from a "big bath" earnings by the first time of the new FASB's standards adoption (Jordan & Clark, 2004).

8.5 Conclusions

In this chapter, the impacts of the changes in business combinations accounting on M&A activity were explored further, in the context of a wider analysis of diverse evidence shown throughout this thesis. This broader analysis included not only the study of economic consequences from the accounting changes on M&A activity, but also the examination of impacts on financial reporting at international level.

If the impact of the accounting changes appears not to be materialised in managerial decisions on M&A deals, the same cannot be argued about managerial discretion in financial reporting. The accounting for business combinations and goodwill can affect significantly the financial reporting and provides opportunities for earnings management. Managerial discretion was a reality by the time when accounting choice was yet possible in business combinations, as shown by diverse literature documenting manipulation of M&A deals, often simply as a mean to comply for uniting of interests.

Unsurprisingly, FASB's proposals generated great concern among several industries, leading to some fierce lobbying which resulted in a compromise from the standard-setting board, materialised by the replacement of goodwill and other intangibles amortisation by impairment tests. Consequently, it is suggested here that managerial discretion shifted to earnings management by means of impairment testing. Moreover, despite the limitations imposed by IASB on business combinations methods at international level, a number of

countries in Europe have a dual accounting system, allowing a significant number of companies to continue using pooling of interests. Further considerations regarding these issues are to be undertaken in the final chapter of this thesis which follows.

Chapter 9 Conclusions and Further Research

9.1 Introduction

From the examination made in the preceding chapters concerning the research hypotheses' development and testing, it is suggested here that the changes in business combinations accounting did not produce significant effects on M&A activity in the USA. Nevertheless, evidence shown in chapter 5, and discussed in chapter 8, together with the early literature review made in this thesis, also shed light on some possibly significant collateral effects produced by FASB's changes. Accordingly, the contextualisation of the central argument of this thesis has been enriched with the examination of the managerial perception of the impact of the new accounting rules on M&A activity, together with the discussion of the implications of managerial discretion on financial reporting under business combinations accounting, in the scope of the examination of the impacts of the new M&A accounting rules on financial reporting.

Despite the models developed for this thesis were carefully designed and closely checked, there are always limitations inherent to statistical modelling and testing. Moreover, the examination of additional evidence, in the scope of a wider analysis of the main research question, carries additional limitations, that will be outlined in the first section of this chapter.

The concluding chapter of this thesis also comprises suggestions for further research and generalisation of research findings. Finally, this chapter concludes

with considerations about the contributions of this thesis for the knowledge, particularly in what concerns to financial reporting related to business combinations accounting, and also to the existing literature in M&A activity.

9.2 Limitations

The development of the models used to test the research hypotheses benefited from several contributions mostly from literature in finance, economics, and accounting. The profuse existing literature on both business combinations accounting and M&A activity provided reasonably sound theoretical and methodological bases, allowing comprehensive models to develop in accordance with the research purposes.

The main methodology used in this thesis is based in multiple regression analysis. Regression models are approximations to reality, which is often complex enough to make it difficult to ensure the appropriateness of the modelling procedure. The M&A activity provides a fine example of a complex reality, as illustrated by the failed attempts to explain comprehensively the occurrence of M&A in waves. Nevertheless, this thesis aims a particular purpose, for which it is not necessary to capture the whole reality of M&A activity over more than a century. Following the examination of the pattern of M&A activity, by means of literature review and data analysis, there is confidence about the appropriateness of the modelling developed here. Moreover, as an in depth analysis was carried for the period subject to testing in this thesis, covering different time frames, and including several sensitivity analyses, it was ensured that the examination covered a multiplicity of different possible situations.

The inexistence of a comprehensive model that could be used straightforwardly as a benchmark, led to the development of concurrent models based in different contributions from literature, also enabling the testing of the research hypotheses under different dimensions. The use of concurrent models allowed

several of the testing results to undergo a cross-analysis, being expected that such confirmation procedure would have reinforced the reliability of the methodology used, strengthening the research findings obtained in this thesis. The use of concurrent models was also justified by the need to ensure a significant number of observations. On the one hand, being this research limited to a maximum time frame of analysis of 15 years, the models could not use a data aggregation superior to a quarter in order to guarantee a reasonable number of observations. On the other, the use of very-short periods of data aggregation, in some models, limited the number of exogenous explanatory variables possible to be utilised due to missing available data.

There is indeed a trade-off between the number of observations and the number of variables that can be used. For example, for a model using monthly data is relatively easy to find statistical data to prepare a reasonably large set of explanatory variables. Conversely, for very short-term studies, using weekly or daily data, the number of observations will be higher, but the number of variables possible to construct will be lower.

Therefore, the inexistence of a comprehensive theory, and some data aggregations used, may constitute limitations for the models developed in this thesis. Nevertheless, as discussed before, despite a wide-ranging theory and a complete model are missing, a generic regression model, appropriately designed and fitted, may work as a fine representation of reality, provided that partial theories and models are available in literature, which is the case, as proved by the many contributions to this thesis from diverse literature in M&A, econometrics, or in behavioural finance.

Besides the basic limitations intrinsic to regression analysis, there are other limitations related specifically with the procedure used. More precisely, related to the use of multiple regression analysis together with time series and stepwise backward elimination of variables. As an example of possible drawbacks, the

order of the variables entered in the regression model can influence the variables selection process in stepwise regression.[273]

Despite any possible adjustments and further fittings that could possibly result in an improvement of the research models, there is a conviction, however, that the versions used in this thesis assure appropriateness concerning the research hypothesis testing.[274]

Other limitations related to the models used in this thesis, include the small number of observations used in the models using monthly data, minimised by the fact that the data aggregation comes from sizeable samples; possible mistakes in M&A data provided by the data provider, Thomson Financial/Reuters, minimised by the use of large samples; and absence of a breakdown of M&A data by industry, which would allow performing a cross--sectional analysis.

Besides the limitations tied to the models development and the testing of the research hypotheses, there are also limitations concerning additional evidence which has been examined, but that was not necessarily subject to statistical testing. It was the case of the examination of annual reports from S&P 500 firms. In the case of the survey results, the evidence collected has been tested, but using small samples. The justification for such procedures and the respective limitations were examined before in chapter 5.

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[273] In order to access for any possible procedure inconsistencies, and to be sure they were not meaningful, numerous sensitivity analyses were conducted – not necessarily shown in this thesis. For a list of drawbacks in stepwise regression see e.g. Stevens (2002).

[274] As discussed before, this confidence is supported by the corroborative use of different sets of data, the exploration of appropriate fittings for the models, the analysis and treatment of outliers, the unconditional observation of the regression analysis assumptions, and by the numerous sensitivity analyses performed.

9.3 Summary of main research and generalisation

In this thesis, the controversial nature of business combinations accounting has been considered in the context of the financial reporting regulatory due process, together with the examination of the issues concerning the challenges raised by the existing user-orientated financial reporting, and by conflicting interests between different stakeholders, particularly whenever managerial discretion affects investors' wealth. The history of accounting standard-setting policy provides several pieces of evidence revealing that GAAP tend to be set reactively rather than proactively, being the discussions on business combinations accounting a fine example of this. Alongside with some fierce corporate lobbying on the new proposals for business combinations accounting, high-level politics was also directly involved in the regulatory process. The examination of the interests underlying accounting choice helped to understand why the lobbying from some pressure groups was so intense: from banking and technological industries, to M&A financial advisors and analysts. Accordingly, the research hypotheses were developed in order to allow testing the appropriateness of FASB's new business combinations GAAP, in the scope of the desired minimisation of the economic consequences caused by changes in accounting policy – as many argued that pooling of interests elimination would affect negatively the M&A activity and the economy of the USA.

The present research examines primarily the possible impacts on M&A activity, as a consequence of the adoption in 2001 of a new set of standards that changed dramatically the business combinations accounting in the USA. Two main time frames were examined: a larger set from 1994 to 2008, using quarterly data; and a shorter three-year period, from 2000 to 2002, using monthly, weekly, and daily data. As shown in chapter 7, in the sensitivity analysis section, the daily data aggregation set was also used for an examination of the very short-term, by testing several alternative time frames, from a few weeks to a few months time. As shown in chapter 6, the triennial M&A activity subject to analysis is represented by a sample of 20,664 M&A deals, comprising 19,758 completed deals and 906 withdrawals, while the larger sample of 1994-2008's is composed

by a total of 127,888 M&A deals, including 122,871 completed deals and a total of 5,017 withdrawn deals.

A long list of explanatory variables was prepared, comprising different types of endogenous and exogenous variables to the M&A activity; and also key intervention variables, constructed with the purpose of testing the research hypotheses. Several models were drawn and fitted, supported by multiple regression analysis with time series methodology, and were accordingly subject to testing, using different sets of data aggregation. Stepwise backward elimination was used, not only to fit the models, but, more importantly, to enable assessing about the importance of the intervention variables. The use of stepwise regression resulted in the elimination of non-statistically significant variables at the 95% level.

Every testing was undertaken with the purpose of identifying potential impacts following the effectiveness of the new accounting standards, on 1 July 2001, by comparing the corresponding time periods adjacent to the event day. The adoption of the two main event periods of examination, 2000-2002, and 1994--2008, has also allowed capturing any possible effects arising from the publication of FASB's reviewed ED on business combinations accounting, on 14 February 2001 – a situation which would not be confirmed, as in any case the event variables were statistically significant, as to be discussed in the following paragraphs.

The event variables were not selected by any model constructed to test the research hypotheses. Several sensitivity analyses were also conducted, including the examination of possible effects from extreme observations, non-trading days and reduced trading days; alternative event time-frames; and alternative significance levels; with no significant implications on the main findings. Of particular importance, concerning the consistency of the regression methodology adopted, the analysis of possible outliers and influential points allowed concluding about the inexistence of significant abnormal effects on the regressions results, therefore avoiding the need for any adjustments, and

meaning that the research findings could be maintained as initially drawn. In resume, the results obtained from testing the research models proved to be sound enough allowing solid conclusions to be drawn.

As shown by the sensitivity analysis performed in chapter 7, the event variables were not even able to reach the 90% level of significance threshold, and therefore the research hypotheses, as outlined in chapter 4, could not be rejected. Therefore, the present research findings indicate that the effectiveness of the new accounting standards did not have any significant impact on the overall M&A activity in the USA, during the periods examined, covering from the very short-term to the long run. Exchange markets conditions, time, and other M&A endogenous factors, proved to be more influential than the changes in the accounting for business combinations in respect to the evolution of M&A activity.

The major generalisation that can be made from these findings is that changes in accounting rules do not necessarily produce economic consequences. GAAP changes are not neutral, and therefore its impacts should be carefully measured by the standard-setters. In the case of the new business combinations accounting standards, it seems that the compromise between the FASB and the lobbying opposing to the discontinuation of pooling of interests was successful.

Another possible generalisation is that the elimination of accounting choice in business combinations accounting did not result necessarily negative for the M&A activity and for the economy. Moreover, it has also probably improved the quality of the information provided to financial reporting users, by enhancing comparability and fairness in the M&A market, as purchased goodwill recognition was enforced for all companies involved in M&A deals.[275]

[275] It seems unquestionable that pooling of interests elimination improved the quality of financial reporting. However the same cannot be argued straightforward for the replacement of purchased goodwill amortisation by impairment tests, as discussed before in chapters 5 and 8.

Finally, despite this thesis being focused on accounting changes occurred in the USA, its findings can be extrapolated worldwide, namely to the several existing national sets of accounting standards which continue to allow pooling of interests method to be used, as discussed in the final section of this thesis.

9.4 Suggestions for further research

A first suggestion for further research is to test the hypotheses formulated in this thesis using cross-sectional data, in order to examine the occurrence of possible impacts of the accounting changes at industry-level. As examined in earlier chapters, anecdotal evidence suggests that pooling of interests was largely favoured in some sectors of activity, such as IT, industrials, and financials. Furthermore, as shown in chapter 5, and discussed in chapter 8, there is some evidence collected in this thesis suggesting that M&A activity in IT industry could have suffered from some degree of constraint as a consequence of the adoption of the new M&A accounting rules. Although not statistically significant, evidence also suggests the existence of possibly meaningful impacts on financials industry. Such indications are worthwhile of further examination, by means of formal hypothesising and testing, as some light could be shed on how reasonable were the allegations, from several representatives of some industries, supporting that the changes in business combinations accounting could result adverse for the financial reporting of companies possibly interested to be involved in M&A deals, particularly for the ones preferring pooling of interests as a way to avoid recognising purchased goodwill and other intangible assets. It was therefore feared that FASB's changes on M&A accounting could end as an inhibiting factor for a significant number of firms in some sectors of activity, negatively impacting the overall M&A activity, and resulting in possibly hazardous effects for the economy of the USA.

As mentioned before, research on pooling of interests versus purchase method may have come to an end, as the focus shifted to the issue of the impairment testing under SFAS 142. However, following adoption of SFAS 141 and SFAS

142, the "new" purchase method differs considerably from its previous version, primarily due to the replacement of constant goodwill amortisation charges by intermittent impairment losses. Therefore, it would be interesting to test capital market reactions to purchase method pre- and post-implementation of the new business combinations accounting standards.

Another suggestion for further research is to test comprehensively the impacts of the new M&A standards on reported earnings. As examined in chapter 5, the impact of the nonamortisation of purchased goodwill and certain intangible assets was very significant, and therefore deserves some further examination. Nevertheless, existing literature is only focused on the examination of impairment losses, disregarding the initial positive impact of such nonamortisation, and therefore neglecting a proper inclusive investigation of the effects resulting from the implementation of the new standards.

Finally, as this thesis examined the impact of the changes in M&A accounting on M&A activity in the USA, it would be utterly interesting if a similar research would be undertaken in other countries and regions worldwide. Since IFRS 3, in 2004, has also eliminated the pooling option, it is therefore possible to replicate the present research study in countries where IASB standards have been adopted. Regarding the examination of possible impacts on M&A activity and on financial reporting as a consequence of the changes occurred in business combinations accounting rules worldwide, the possibility of obtaining some international comparisons would be certainly of great interest.

9.5 Contributions

This thesis offers some breakthroughs in areas of research related to business combinations accounting and also to M&A activity. Indeed, the research developed here provides several advances in the knowledge of M&A activity and accounting, not only by means of original contributions, but also by means of corroborating, or questioning, several findings from existing literature.

To the best of the knowledge of the author of this thesis, the main research question formulated here is unique in the literature. As a consequence of the novelty presented by this thesis, the research hypotheses and the models developed for the due testing are also original in many ways. Similarly, the survey study and the examination of annual reports, do not find parallel in the literature, at least in terms of comprehensiveness.[276]

Therefore, this thesis represents a breakthrough in the research concerned with accounting choice in business combinations accounting in the post-SFAS 141 & 142 implementation period. Despite its original purposes, this thesis is, nevertheless, related to diverse literature in business combinations and in M&A activity.

In terms of general contributions for the knowledge, the findings shown and discussed in this thesis suggest that the compromise achieved between the FASB and the different pressure groups was overall successful.[277] The initial reaction to FASB's early proposals was of great concern, as many managers and other professionals in the M&A business feared that the accounting changes could constrain considerably the M&A activity. Lobbyists also argued and warned about the possible negative impact on the economy of the USA as a consequence of a limited level of M&A activity. In order to keep the pooling elimination proposal, the FASB had to compromise, replacing the initial proposal of amortising purchased goodwill over a maximum of twenty years - versus the former AICPA's APB ceiling of forty years - by impairment tests. With the publication of SFAS 141 and SFAS 142, in 2001, the dual accounting

[276] There are a number of papers presenting partial pieces of evidence about the prospective impacts of the new business combinations accounting rules on financial reporting, mostly published by the time when FASB's proposals were being publicly discussed. There are also many testimonies available from managers about FASB's proposals and deliberations on business combinations accounting, some of which were reproduced in this thesis.

[277] Nevertheless, it is important to recall that there is evidence indicating some degree of impact on M&A activity at industry-level, particularly for IT industry, and also possibly for other sectors of activity, such as the case of financials and industrials.

for business combinations has finally come to an end in the USA. As suggested by the testing results obtained and discussed in this thesis, the M&A activity continued to flow barely impassive, driven primarily by financial, economic, time, and seasonal factors.

This research also contributes to the existing knowledge by presenting fresh evidence about significant impacts of the new business combinations accounting rules on financial reporting. Indeed, evidence for S&P 500 companies, concerning reported figures, revealed that had the new FASB's pronouncements being implemented -1 or -2 years before the effective adoption date, and the diluted EPS would have increased on average 20 and 30%, respectively, being this finding unique in existing literature, to the best of the knowledge of the author of this thesis.

Furthermore, additional evidence shown in this research, also collected from annual reports of S&P 500 companies, supports the "big bath" earnings theory, as a considerable number of companies recognised very significant impairment losses immediately upon the first year of SFAS 142 adoption, a time of economic contraction (see e.g. Jordan & Clark, 2004, 2005).

In terms of key contributions of this thesis to the existing literature, the finding that the new FASB's pronouncements did not result in significant effects on the overall M&A activity, both in the very-short, short, medium, and long terms, is consistent with pre-2001 literature findings, suggesting that the selection of a particular accounting method in business combinations, either pooling of interests or purchase accounting, is irrelevant, as markets can adjust to the differences in accounting methods (Chatraphorn, 2001: 75).This conclusion is also consistent with existing literature supporting market efficiency, which argues that the market is able to assess the underlying economics of a transaction, regardless the accounting procedure used (M. L. Davis, 1990; Hong et al., 1978; Lindenberg & Ross, 1999; Vincent, 1997). Indeed, several event studies examining companies that used accounting choice to adjust accounting figures found that such practices do not produce economic effects (Brealey &

Myers, 1996, T. Copeland & Weston, 1983, Hong et al., 1978). Therefore, this thesis corroborates the suggestion that investors ignore accounting numbers, such as earnings, in their investment decisions, namely regarding M&A valuation, since they do not consider them to have true economic significance.

Finally, the findings of this thesis have also implications for several existing national sets of accounting standards worldwide which continue to include accounting choice in business combinations accounting methods and/or in the accounting treatment for purchased goodwill and other intangible assets. Furthermore, many countries keep permitting the use of pooling of interests method and the amortisation of purchased goodwill, despite the concurrent use of IASB's standards, which, in turn, has already abandoned such procedures in the meantime..

The accounting choice in business combinations ended in the USA in 2001, and the IASB would also soon later follow FASB's steps, by issuing IFRS 3 in 2004. A move which can be considered as natural since both standard-setting boards had previously agreed in a convergence project on business combinations. In the scope of a long-term project, both FASB and IASB have inclusively issued recently revised versions of SFAS 141 and IFRS 3, more precisely on 4 December 2007 and 10 January 2008, respectively, in order to reinforce international convergence in business combinations accounting.

As discussed in chapter 8, the case of many countries in Europe is particularly interesting. Several European national sets of accounting standards continue permitting to use pooling of interests, or a similar method, and to amortise purchased goodwill. However, with the adoption of IASB's standards by the EU in 2005, a dual accounting system was created, in which any listed company is compelled to prepare consolidated accounts according to IASB's standards. Under IASB's GAAP, i.e. IFRS 3 and related standards, pooling of interests and purchased goodwill amortisation are not allowed, similarly to SFAS 141 and SFAS 142. Therefore, listed companies with consolidated accounting cannot continue to use anymore pooling of interests, or a similar method, and have

necessarily to recognise purchased goodwill in their balance sheets. Likewise, firms reporting under IASB GAAP are now testing purchased goodwill for impairment losses, to the detriment of the amortisation procedure.

Despite the trends set by the FASB and the IASB, not followed by other notable boards such as the UK ASB though, for many companies using domestic GAAP sets nothing has changed in business combinations accounting, as the pooling option and the amortisations of goodwill continue to be a reality. Such context configures an imbalanced situation, in which a small number of companies that has to use IASB's standards cannot qualify any M&A deal for pooling of interests anymore. This is in clear contrast to the majority of the remaining European companies which, in turn, can be regarded as being privileged since they can continue to avoid recognising purchased goodwill, benefiting from the exemption of having to subject their earnings to any possible charges as a result of amortisations or impairment procedures, provided that they are able to qualify the M&A deals as uniting of interests. As IASB's standards are nowadays accepted by over one hundred countries, this incongruent situation is also a reality for several other countries worldwide.

It is therefore argued in this thesis that national accounting standard-setters, not only from Europe but also worldwide, should follow closely IASB's GAAP on this subject matter, by eliminating the accounting choice in business combinations, and by consequently enforcing the recognition of goodwill whenever the deal value is superior to the total fair values of the assets and liabilities of the firm considered to be the M&A target. By discontinuing the pooling of interests option and by establishing a single standard rule for any company involved in a M&A deal worldwide, financial reporting comparability and fairness among companies would be dramatically improved, resulting in a very significant progress in the context of an increasingly global competition.

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Appendix A S&P 500 Companies List as of 31 December 2004

Company	Industry	Country	Fiscal Year
3M Company	Industrials	USA	Dec-30
Abbott Labs	Health Care	USA	Dec-30
ACE Limited	Financials	Bermuda	Dec-31
ADC Telecommunications	Information Technology	USA	Dec-30
Adobe Systems	Information Technology	USA	Nov-30
Advanced Micro Devices	Information Technology	USA	Dec-30
AES Corp.	Utilities	USA	Dec-31
Aetna Inc.	Health Care	USA	Dec-31
Affiliated Computer	Information Technology	USA	Jun-30
AFLAC Inc.	Financials	USA	Dec-31
Agilent Technologies	Information Technology	USA	Oct-31
Air Products & Chemicals	Materials	USA	Sep-30
Alberto-Culver	Consumer Staples	USA	Sep-30
Albertson's	Consumer Staples	USA	Jan-31
Alcoa Inc.	Materials	USA	Dec-31
Allegheny Energy	Utilities	USA	Dec-31
Allegheny Technologies Inc.	Materials	USA	Dec-31
Allergan Inc.	Health Care	USA	Dec-31
Allied Waste Industries	Industrials	USA	Dec-31
Allstate Corp.	Financials	USA	Dec-31
ALLTEL Corp.	Telecommunication Services	USA	Dec-31
Altera Corp.	Information Technology	USA	Dec-31
Altria Group, Inc.	Consumer Staples	USA	Dec-31
Ambac Financial Group	Financials	USA	Dec-31
Amerada Hess	Energy	USA	Dec-31
Ameren Corporation	Utilities	USA	Dec-31
American Electric Power	Utilities	USA	Dec-31
American Express	Financials	USA	Dec-31
American Int'l. Group	Financials	USA	Dec-31
American Power Conversion	Industrials	USA	Dec-31
American Standard	Industrials	USA	Dec-31
AmerisourceBergen Corp.	Health Care	USA	Sep-30
Amgen	Health Care	USA	Dec-31
AmSouth Bancorporation	Financials	USA	Dec-31
Anadarko Petroleum	Energy	USA	Dec-31

Analog Devices	Information Technology	USA	May-05
Andrew Corp.	Information Technology	USA	Sep-30
Anheuser-Busch	Consumer Staples	USA	Dec-31
Aon Corp.	Financials	USA	Dec-31
Apache Corp.	Energy	USA	Dec-31
Apartment Investment & Mgmt.	Financials	USA	Dec-31
Apollo Group	Industrials	USA	Aug-31
Apple Computer	Information Technology	USA	Sep-30
Applera Corp-Applied Biosystems Grp.	Health Care	USA	Jun-30
Applied Materials	Information Technology	USA	Oct-26
Applied Micro Circuits	Information Technology	USA	Mar-31
Archer-Daniels-Midland	Consumer Staples	USA	Jun-30
Archstone-Smith Trust	Financials	USA	Dec-31
Ashland Inc.	Energy	USA	Sep-30
AT&T Corp.	Telecommunication Services	USA	Dec-31
Autodesk Inc.	Information Technology	USA	Jan-31
Automatic Data Processing Inc.	Information Technology	USA	Jun-30
AutoNation, Inc.	Consumer Discretionary	USA	Dec-31
AutoZone Inc.	Consumer Discretionary	USA	Aug-28
Avaya Inc.	Information Technology	USA	Sep-30
Avery Dennison Corp.	Industrials	USA	Dec-31
Avon Products	Consumer Staples	USA	Dec-31
Baker Hughes	Energy	USA	Dec-31
Ball Corp.	Materials	USA	Dec-31
Bank of America Corp.	Financials	USA	Dec-31
Bank of New York	Financials	USA	Dec-31
Bard (C.R.) Inc.	Health Care	USA	Dec-31
Bausch & Lomb	Health Care	USA	Dec-26
Baxter International Inc.	Health Care	USA	Dec-31
BB&T Corporation	Financials	USA	Dec-31
Bear Stearns Cos.	Financials	USA	Nov-30
Becton, Dickinson	Health Care	USA	Sep-30
Bed Bath & Beyond	Consumer Discretionary	USA	Feb-28
BellSouth	Telecommunication Services	USA	Dec-31
Bemis Company	Materials	USA	Dec-31
Best Buy Co., Inc.	Consumer Discretionary	USA	Feb-28
Big Lots Inc.	Consumer Discretionary	USA	Jan-31
Biogen Idec Inc.	Health Care	USA	Dec-31
Biomet Inc.	Health Care	USA	May-31
BJ Services	Energy	USA	Sep-30

Black & Decker Corp.	Consumer Discretionary	USA	Dec-31
Block H&R	Industrials	USA	Apr-30
BMC Software	Information Technology	USA	Mar-31
Boeing Company	Industrials	USA	Dec-31
Boston Scientific	Health Care	USA	Dec-31
Bristol-Myers Squibb	Health Care	USA	Dec-31
Broadcom Corporation	Information Technology	USA	Dec-31
Brown-Forman Corp.	Consumer Staples	USA	Apr-30
Brunswick Corp.	Consumer Discretionary	USA	Dec-31
Burlington Northern Santa Fe C.	Industrials	USA	Dec-31
Burlington Resources	Energy	USA	Dec-31
Calpine Corp.	Utilities	USA	Dec-31
Campbell Soup	Consumer Staples	USA	Jul-29
Capital One Financial	Financials	USA	Dec-31
Cardinal Health Inc.	Health Care	USA	Jun-30
Caremark Rx	Health Care	USA	Dec-31
Carnival Corp.	Consumer Discretionary	USA	Nov-30
Caterpillar Inc.	Industrials	USA	Dec-31
Cendant Corporation	Industrials	USA	Dec-31
CenterPoint Energy	Utilities	USA	Dec-31
Centex Corp.	Consumer Discretionary	USA	Mar-31
Century Telephone	Telecommunication Services	USA	Dec-31
Charles Schwab	Financials	USA	Dec-31
ChevronTexaco Corp.	Energy	USA	Dec-31
Chiron Corp.	Health Care	USA	Dec-31
Chubb Corp.	Financials	USA	Dec-31
Ciena Corp.	Information Technology	USA	Oct-31
CIGNA Corp.	Health Care	USA	Dec-31
Cincinnati Financial	Financials	USA	Dec-31
CINergy Corp.	Utilities	USA	Dec-31
Cintas Corporation	Industrials	USA	May-31
Circuit City Group	Consumer Discretionary	USA	Feb-28
Cisco Systems	Information Technology	USA	Jul-31
CIT Group	Financials	USA	Dec-31
Citigroup Inc.	Financials	USA	Dec-31
Citizens Communications	Telecommunication Services	USA	Dec-31
Citrix Systems	Information Technology	USA	Dec-31
Clear Channel Communications	Consumer Discretionary	USA	Dec-31
Clorox Co.	Consumer Staples	USA	Jun-30
CMS Energy	Utilities	USA	Dec-31

Coach Inc.	Consumer Discretionary	USA	Jun-30
Coca Cola Co.	Consumer Staples	USA	Dec-31
Coca-Cola Enterprises	Consumer Staples	USA	Dec-31
Colgate-Palmolive	Consumer Staples	USA	Dec-31
Comcast Corp.	Consumer Discretionary	USA	Dec-31
Comerica Inc.	Financials	USA	Dec-31
Compass Bancshares	Financials	USA	Dec-31
Computer Associates Int'l.	Information Technology	USA	Mar-31
Computer Sciences Corp.	Information Technology	USA	Apr-02
Compuware Corp.	Information Technology	USA	Mar-31
Comverse Technology	Information Technology	USA	Jan-31
ConAgra Foods Inc.	Consumer Staples	USA	May-31
ConocoPhillips	Energy	USA	Dec-31
Consolidated Edison	Utilities	USA	Dec-31
Constellation Energy Group	Utilities	USA	Dec-31
Convergys Corp.	Information Technology	USA	Dec-31
Cooper Industries Ltd.	Industrials	USA	Dec-31
Cooper Tire & Rubber	Consumer Discretionary	USA	Dec-31
Coors (Adolph)	Consumer Staples	USA	Dec-28
Corning Inc.	Information Technology	USA	Dec-28
Costco Co.	Consumer Staples	USA	Aug-30
Countrywide Financial Corp.	Financials	USA	Dec-31
CSX Corp.	Industrials	USA	Dec-31
Cummins Inc.	Industrials	USA	Dec-31
CVS Corp.	Consumer Staples	USA	Dec-31
Dana Corp.	Consumer Discretionary	USA	Dec-31
Danaher Corp.	Industrials	USA	Dec-31
Darden Restaurants	Consumer Discretionary	USA	May-26
Deere & Co.	Industrials	USA	Oct-31
Dell Inc.	Information Technology	USA	Jan-29
Delphi Corporation	Consumer Discretionary	USA	Dec-31
Delta Air Lines	Industrials	USA	Dec-31
Devon Energy Corp.	Energy	USA	Dec-31
Dillard Inc.	Consumer Discretionary	USA	Jan-05
Dollar General	Consumer Discretionary	USA	Jan-31
Dominion Resources	Utilities	USA	Dec-31
Donnelley (R.R.) & Sons	Industrials	USA	Dec-31
Dover Corp.	Industrials	USA	Dec-31
Dow Chemical	Materials	USA	Dec-31
Dow Jones & Co.	Consumer Discretionary	USA	Dec-31

DTE Energy Co.	Utilities	USA	Dec-31
Du Pont (E.I.)	Materials	USA	Dec-31
Duke Energy	Utilities	USA	Dec-31
Dynegy Inc.	Utilities	USA	Dec-31
E*Trade Financial Corp.	Financials	USA	Dec-31
Eastman Chemical	Materials	USA	Dec-31
Eastman Kodak	Consumer Discretionary	USA	Dec-31
Eaton Corp.	Industrials	USA	Dec-31
eBay Inc.	Consumer Discretionary	USA	Dec-31
Ecolab Inc.	Materials	USA	Dec-31
Edison Int'l.	Utilities	USA	Dec-31
El Paso Corp.	Energy	USA	Dec-31
Electronic Arts	Information Technology	USA	Mar-31
Electronic Data Systems	Information Technology	USA	Dec-31
EMC Corp.	Information Technology	USA	Dec-31
Emerson Electric	Industrials	USA	Sep-30
Engelhard Corp.	Materials	USA	Dec-31
Entergy Corp.	Utilities	USA	Dec-31
EOG Resources	Energy	USA	Dec-31
Equifax Inc.	Industrials	USA	Dec-31
Equity Office Properties	Financials	USA	Dec-31
Equity Residential	Financials	USA	Dec-31
Exelon Corp.	Utilities	USA	Dec-31
Express Scripts	Health Care	USA	Dec-31
Exxon Mobil Corp.	Energy	USA	Dec-31
Family Dollar Stores	Consumer Discretionary	USA	Aug-29
Fannie Mae	Financials	USA	Dec-31
Federal Home Loan Mtg.	Financials	USA	Dec-31
Federated Dept. Stores	Consumer Discretionary	USA	Jan-31
Federated Investors Inc.	Financials	USA	Dec-31
FedEx Corporation	Industrials	USA	May-31
Fifth Third Bancorp	Financials	USA	Dec-31
First Data	Information Technology	USA	Dec-31
First Horizon National	Financials	USA	Dec-31
FirstEnergy Corp.	Utilities	USA	Dec-31
FIserv Inc.	Information Technology	USA	Dec-31
Fisher Scientific	Health Care	USA	Dec-31
Fluor Corp.	Industrials	USA	Dec-31
Ford Motor	Consumer Discretionary	USA	Dec-31
Forest Laboratories	Health Care	USA	Mar-31

Fortune Brands Inc.	Consumer Discretionary	USA	Dec-31
FPL Group	Utilities	USA	Dec-31
Franklin Resources	Financials	USA	Sep-30
Freeport-McMoran Cp & Gld	Materials	USA	Dec-31
Freescale Semiconductor Inc.	Information Technology	USA	Dec-31
Gannett Co.	Consumer Discretionary	USA	Dec-31
Gap (The)	Consumer Discretionary	USA	Jan-31
Gateway Inc.	Information Technology	USA	Dec-31
General Dynamics	Industrials	USA	Dec-31
General Electric	Industrials	USA	Dec-31
General Mills	Consumer Staples	USA	May-25
General Motors	Consumer Discretionary	USA	Dec-31
Genuine Parts	Consumer Discretionary	USA	Dec-31
Genzyme Corp.	Health Care	USA	Dec-31
Georgia-Pacific Group	Materials	USA	Dec-28
Gilead Sciences	Health Care	USA	Dec-31
Gillette Co.	Consumer Staples	USA	Dec-31
Golden West Financial	Financials	USA	Dec-31
Goldman Sachs Group	Financials	USA	Nov-28
Goodrich Corporation	Industrials	USA	Dec-31
Goodyear Tire & Rubber	Consumer Discretionary	USA	Dec-31
Grainger (W.W.) Inc.	Industrials	USA	Dec-31
Great Lakes Chemical	Materials	USA	Dec-31
Guidant Corp.	Health Care	USA	Dec-17
Halliburton Co.	Energy	USA	Dec-31
Harley-Davidson	Consumer Discretionary	USA	Dec-31
Harrah's Entertainment	Consumer Discretionary	USA	Dec-31
Hartford Financial Svc. Gp.	Financials	USA	Dec-31
Hasbro Inc.	Consumer Discretionary	USA	Dec-27
HCA Inc.	Health Care	USA	Dec-31
Health Management Assoc.	Health Care	USA	Sep-30
Heinz (H.J.)	Consumer Staples	USA	Apr-30
Hercules Inc.	Materials	USA	Dec-31
Hershey Foods	Consumer Staples	USA	Dec-31
Hewlett-Packard	Information Technology	USA	Oct-31
Hilton Hotels	Consumer Discretionary	USA	Dec-31
Home Depot	Consumer Discretionary	USA	Jan-31
Honeywell Int'l Inc.	Industrials	USA	Dec-31
Hospira Inc.	Health Care	USA	Dec-31
Humana Inc.	Health Care	USA	Dec-31

Huntington Bancshares	Financials	USA	Dec-31
Illinois Tool Works	Industrials	USA	Dec-31
IMS Health Inc.	Health Care	USA	Dec-31
Ingersoll-Rand Co. Ltd.	Industrials	USA	Dec-31
Intel Corp.	Information Technology	USA	Dec-31
International Bus. Machines	Information Technology	USA	Dec-31
International Flav/Frag	Materials	USA	Dec-31
International Game Technology	Consumer Discretionary	USA	Sep-30
International Paper	Materials	USA	Dec-31
Interpublic Group	Consumer Discretionary	USA	Dec-31
Intuit Inc.	Information Technology	USA	Jul-31
ITT Industries Inc.	Industrials	USA	Dec-31
Jabil Circuit	Information Technology	USA	Aug-31
Janus Capital Group	Financials	USA	Dec-31
JDS Uniphase Corp	Information Technology	USA	Jun-30
Jefferson-Pilot	Financials	USA	Dec-31
Johnson & Johnson	Health Care	USA	Mar-05
Johnson Controls	Consumer Discretionary	USA	Sep-30
Jones Apparel Group	Consumer Discretionary	USA	Dec-31
JPMorgan Chase & Co.	Financials	USA	Dec-31
KB Home	Consumer Discretionary	USA	Nov-30
Kellogg Co.	Consumer Staples	USA	Dec-31
Kerr-McGee	Energy	USA	Dec-31
KeyCorp	Financials	USA	Dec-31
Keyspan Energy	Utilities	USA	Dec-31
Kimberly-Clark	Consumer Staples	USA	Dec-31
Kinder Morgan	Energy	USA	Dec-31
King Pharmaceuticals	Health Care	USA	Dec-31
KLA-Tencor Corp.	Information Technology	USA	Jun-30
Knight-Ridder Inc.	Consumer Discretionary	USA	Dec-27
Kohl's Corp.	Consumer Discretionary	USA	Jan-30
Kroger Co.	Consumer Staples	USA	Feb-05
L-3 Communications Holdings	Industrials	USA	Dec-31
Laboratory Corp. of America Holding	Health Care	USA	Dec-31
Leggett & Platt	Consumer Discretionary	USA	Dec-31
Lehman Bros.	Financials	USA	Nov-30
Lexmark Int'l Inc.	Information Technology	USA	Dec-31
Lilly (Eli) & Co.	Health Care	USA	Dec-31
Limited Brands Inc.	Consumer Discretionary	USA	Jan-31
Lincoln National	Financials	USA	Dec-31

Linear Technology Corp.	Information Technology	USA	Jun-27
Liz Claiborne, Inc.	Consumer Discretionary	USA	Dec-28
Lockheed Martin Corp.	Industrials	USA	Dec-31
Loews Corp.	Financials	USA	Dec-31
Louisiana Pacific	Materials	USA	Dec-31
Lowe's Cos.	Consumer Discretionary	USA	Jan-29
LSI Logic	Information Technology	USA	Dec-31
Lucent Technologies	Information Technology	USA	Sep-30
M&T Bank Corp.	Financials	USA	Dec-31
Manor Care Inc.	Health Care	USA	Dec-31
Marathon Oil Corp.	Energy	USA	Dec-31
Marriott Int'l.	Consumer Discretionary	USA	Dec-31
Marsh & McLennan	Financials	USA	Dec-31
Marshall & Ilsley Corp.	Financials	USA	Dec-31
Masco Corp.	Industrials	USA	Dec-31
Mattel Inc.	Consumer Discretionary	USA	Dec-31
Maxim Integrated Prod	Information Technology	USA	Dec-15
May Dept. Stores	Consumer Discretionary	USA	Jan-05
Maytag Corp.	Consumer Discretionary	USA	Dec-31
MBIA Inc.	Financials	USA	Dec-31
MBNA Corp.	Financials	USA	Dec-31
McCormick & Co.	Consumer Staples	USA	Nov-30
McDonald's Corp.	Consumer Discretionary	USA	Dec-31
McGraw-Hill	Consumer Discretionary	USA	Dec-31
McKesson Corp.	Health Care	USA	Mar-31
MeadWestvaco Corporation	Materials	USA	Dec-31
Medco Health Solutions Inc.	Health Care	USA	Dec-29
MedImmune Inc.	Health Care	USA	Dec-31
Medtronic Inc.	Health Care	USA	Apr-30
Mellon Bank Corp.	Financials	USA	Dec-31
Merck & Co.	Health Care	USA	Dec-31
Mercury Interactive	Information Technology	USA	Dec-31
Meredith Corp.	Consumer Discretionary	USA	Jun-30
Merrill Lynch	Financials	USA	Dec-31
MetLife Inc.	Financials	USA	Dec-31
MGIC Investment	Financials	USA	Dec-31
Micron Technology	Information Technology	USA	Aug-31
Microsoft Corp.	Information Technology	USA	Jun-30
Millipore Corp.	Health Care	USA	Dec-31
Molex Inc.	Information Technology	USA	Jun-30

Monsanto Co.	Materials	USA	Aug-31
Monster Worldwide	Industrials	USA	Dec-31
Moody's Corp.	Financials	USA	Dec-31
Morgan Stanley	Financials	USA	Nov-30
Motorola Inc.	Information Technology	USA	Dec-31
Mylan Laboratories	Health Care	USA	Mar-31
Nabors Industries Ltd.	Energy	Barbados	Dec-31
National City Corp.	Financials	USA	Dec-31
National Semiconductor	Information Technology	USA	May-31
Navistar International Corp.	Industrials	USA	Oct-31
NCR Corp.	Information Technology	USA	Dec-31
Network Appliance	Information Technology	USA	Apr-30
New York Times	Consumer Discretionary	USA	Dec-31
Newell Rubbermaid Co.	Consumer Discretionary	USA	Dec-31
Newmont Mining Corp. (Hldg. Co.)	Materials	USA	Dec-31
News Corporation	Consumer Discretionary	USA	Jun-30
Nextel Communications	Telecommunication Services	USA	Dec-31
NICOR Inc.	Utilities	USA	Dec-31
NIKE Inc.	Consumer Discretionary	USA	May-31
NiSource Inc.	Utilities	USA	Dec-31
Noble Corporation	Energy	USA	Dec-31
Nordstrom	Consumer Discretionary	USA	Jan-29
Norfolk Southern Corp.	Industrials	USA	Dec-31
North Fork Bancorporation	Financials	USA	Dec-31
Northern Trust Corp.	Financials	USA	Dec-31
Northrop Grumman Corp.	Industrials	USA	Dec-31
Novell Inc.	Information Technology	USA	Oct-31
Novellus Systems	Information Technology	USA	Dec-31
Nucor Corp.	Materials	USA	Dec-31
NVIDIA Corp.	Information Technology	USA	Jan-25
Occidental Petroleum	Energy	USA	Dec-31
Office Depot	Consumer Discretionary	USA	Dec-26
OfficeMax Inc.	Consumer Discretionary	USA	Dec-31
Omnicom Group	Consumer Discretionary	USA	Dec-31
Oracle Corp.	Information Technology	USA	May-31
PACCAR Inc.	Industrials	USA	Dec-31
Pactiv Corp.	Materials	USA	Dec-31
Pall Corp.	Industrials	USA	Feb-05
Parametric Technology	Information Technology	USA	Sep-30
Parker-Hannifin	Industrials	USA	Jun-30

Paychex Inc.	Information Technology	USA	May-31
Penney (J.C.)	Consumer Discretionary	USA	Jan-26
Peoples Energy	Utilities	USA	Sep-30
Pepsi Bottling Group	Consumer Staples	USA	Dec-31
PepsiCo Inc.	Consumer Staples	USA	Dec-28
PerkinElmer	Health Care	USA	Dec-28
Pfizer Inc.	Health Care	USA	Dec-31
PG&E Corp.	Utilities	USA	Dec-31
Phelps Dodge	Materials	USA	Dec-31
Pinnacle West Capital	Utilities	USA	Dec-31
Pitney-Bowes	Industrials	USA	Dec-31
Plum Creek Timber Co.	Financials	USA	Dec-31
PMC-Sierra Inc.	Information Technology	USA	May-05
PNC Bank Corp.	Financials	USA	Dec-31
Power-One Inc.	Industrials	USA	Dec-31
PPG Industries	Materials	USA	Dec-31
PPL Corp.	Utilities	USA	Dec-31
Praxair Inc.	Materials	USA	Dec-31
Principal Financial Group	Financials	USA	Dec-31
Procter & Gamble	Consumer Staples	USA	Jun-30
Progress Energy Inc.	Utilities	USA	Dec-31
Progressive Corp.	Financials	USA	Dec-31
ProLogis	Financials	USA	Dec-31
Providian Financial Corp.	Financials	USA	Dec-31
Prudential Financial	Financials	USA	Dec-31
Public Serv. Enterprise Inc.	Utilities	USA	Dec-31
Pulte Homes, Inc.	Consumer Discretionary	USA	Dec-31
QLogic Corp.	Information Technology	USA	Mar-28
QUALCOMM Inc.	Information Technology	USA	Sep-30
Quest Diagnostics	Health Care	USA	Dec-31
Qwest Communications Int	Telecommunication Services	USA	Dec-31
RadioShack Corp	Consumer Discretionary	USA	Dec-31
Raytheon Co.	Industrials	USA	Dec-31
Reebok International	Consumer Discretionary	USA	Dec-31
Regions Financial Corp.	Financials	USA	Dec-31
Reynolds American Inc.	Consumer Staples	USA	Dec-31
Robert Half International	Industrials	USA	Dec-31
Rockwell Automation Inc.	Industrials	USA	Sep-30
Rockwell Collins	Industrials	USA	Sep-30
Rohm & Haas	Materials	USA	Dec-31

Rowan Cos.	Energy	USA	Dec-31
Ryder System	Industrials	USA	Dec-31
Sabre Holding Corp.	Information Technology	USA	Dec-31
SAFECO Corp.	Financials	USA	Dec-31
Safeway Inc.	Consumer Staples	USA	Dec-28
Sanmina-SCI Corp.	Information Technology	USA	Sep-30
Sara Lee Corp.	Consumer Staples	USA	Jun-30
SBC Communications Inc.	Telecommunication Services	USA	Dec-31
Schering-Plough	Health Care	USA	Dec-31
Schlumberger Ltd.	Energy	USA	Dec-31
Scientific-Atlanta	Information Technology	USA	Jun-30
Sealed Air Corp.	Materials	USA	Dec-31
Sears, Roebuck & Co.	Consumer Discretionary	USA	Dec-28
Sempra Energy	Utilities	USA	Dec-31
Sherwin-Williams	Consumer Discretionary	USA	Dec-31
Siebel Systems Inc.	Information Technology	USA	Dec-31
Sigma-Aldrich	Materials	USA	Dec-31
Simon Property Group Inc.	Financials	USA	Dec-31
SLM Corporation	Financials	USA	Dec-31
Snap-On Inc.	Consumer Discretionary	USA	Dec-31
Solectron	Information Technology	USA	Aug-31
Southern Co.	Utilities	USA	Dec-31
Southwest Airlines	Industrials	USA	Dec-31
Sovereign Bancorp	Financials	USA	Dec-31
Sprint Corp.	Telecommunication Services	USA	Dec-31
St Jude Medical	Health Care	USA	Dec-31
St. Paul Travelers Cos.	Financials	USA	Dec-31
Stanley Works	Consumer Discretionary	USA	Dec-31
Staples Inc.	Consumer Discretionary	USA	Jan-27
Starbucks Corp.	Consumer Discretionary	USA	Sep-28
Starwood Hotels & Resorts	Consumer Discretionary	USA	Dec-31
State Street Corp.	Financials	USA	Dec-31
Stryker Corp.	Health Care	USA	Dec-31
Sun Microsystems	Information Technology	USA	Jun-30
SunGard Data Systems	Information Technology	USA	Dec-31
Sunoco Inc.	Energy	USA	Dec-31
SunTrust Banks	Financials	USA	Dec-31
Supervalu Inc.	Consumer Staples	USA	Feb-22
Symantec Corp.	Information Technology	USA	Feb-05
Symbol Technologies	Information Technology	USA	Dec-31

Synovus Financial	Financials	USA	Dec-31
Sysco Corp.	Consumer Staples	USA	Jun-30
T. Rowe Price Group	Financials	USA	Dec-31
Target Corp.	Consumer Discretionary	USA	Jan-31
TECO Energy	Utilities	USA	Dec-31
Tektronix Inc.	Information Technology	USA	May-31
Tellabs Inc.	Information Technology	USA	Dec-31
Temple-Inland	Materials	USA	Dec-30
Tenet Healthcare Corp.	Health Care	USA	Dec-31
Teradyne Inc.	Information Technology	USA	Dec-31
Texas Instruments	Information Technology	USA	Dec-31
Textron Inc.	Industrials	USA	Dec-31
Thermo Electron	Health Care	USA	Dec-31
Tiffany & Co.	Consumer Discretionary	USA	Jan-31
Time Warner Inc.	Consumer Discretionary	USA	Dec-31
TJX Companies Inc.	Consumer Discretionary	USA	Jan-27
Torchmark Corp.	Financials	USA	Dec-31
Toys R Us Inc.	Consumer Discretionary	USA	Jan-30
Transocean Inc.	Energy	USA	Dec-31
Tribune Co.	Consumer Discretionary	USA	Dec-27
TXU Corp.	Utilities	USA	Dec-31
Tyco International	Industrials	Bermuda	Sep-30
U.S. Bancorp	Financials	USA	Dec-31
Union Pacific	Industrials	USA	Dec-31
Unisys Corp.	Information Technology	USA	Dec-31
United Health Group Inc.	Health Care	USA	Dec-31
United Parcel Service	Industrials	USA	Dec-31
United States Steel Corp.	Materials	USA	Dec-31
United Technologies	Industrials	USA	Dec-31
Univision Communications	Consumer Discretionary	USA	Dec-31
Unocal Corp.	Energy	USA	Dec-31
UnumProvident Corp.	Financials	USA	Dec-31
UST Inc.	Consumer Staples	USA	Dec-31
V.F. Corp.	Consumer Discretionary	USA	Dec-29
Valero Energy	Energy	USA	Dec-31
Veritas Software	Information Technology	USA	Dec-31
Verizon Communications	Telecommunication Services	USA	Dec-31
Viacom Inc.	Consumer Discretionary	USA	Dec-31
Visteon Corp.	Consumer Discretionary	USA	Dec-31
Vulcan Materials	Materials	USA	Dec-31

Wachovia Corp.	Financials	USA	Dec-31
Walgreen Co.	Consumer Staples	USA	Aug-31
Wal-Mart Stores	Consumer Staples	USA	Jan-31
Walt Disney Co.	Consumer Discretionary	USA	Sep-30
Washington Mutual	Financials	USA	Dec-31
Waste Management Inc.	Industrials	USA	Dec-31
Waters Corporation	Health Care	USA	Dec-31
Watson Pharmaceuticals	Health Care	USA	Dec-31
WellPoint Inc.	Health Care	USA	Dec-31
Wells Fargo	Financials	USA	Dec-31
Wendy's International	Consumer Discretionary	USA	Dec-31
Weyerhaeuser Corp.	Materials	USA	Dec-28
Whirlpool Corp.	Consumer Discretionary	USA	Dec-31
Williams Cos.	Energy	USA	Dec-31
Wrigley (Wm) Jr.	Consumer Staples	USA	Dec-31
Wyeth	Health Care	USA	Dec-31
Xcel Energy Inc.	Utilities	USA	Dec-31
Xerox Corp.	Information Technology	USA	Dec-31
Xilinx Inc.	Information Technology	USA	Mar-29
XL Capital	Financials	Bermuda	Dec-31
XTO Energy Inc.	Energy	USA	Dec-31
Yahoo Inc.	Information Technology	USA	Dec-31
Yum! Brands Inc	Consumer Discretionary	USA	Dec-31
Zimmer Holdings	Health Care	USA	Dec-31
Zions Bancorp	Financials	USA	Dec-31

Appendix B Questionnaire Addressed to S&P 500 companies

1. FASB published in June, 2001 SFAS 141 which superseded APB Opinion No. 16. Among many changes about business combinations accounting it banned the pooling of interests method.
Did the publication of SFAS 141 contribute or constrain in any way the completion of a M&A? If so, please describe above how, if not just please mark a cross in "no effect".

Contributed	Constrained	No Effect

2. FASB published in June, 2001 SFAS 142 which superseded APB Opinion No. 17. Among many changes about business combinations accounting it replaced goodwill amortization by impairment tests.
Did the publication of SFAS 142 contribute or constrain in any way the completion of a M&A? If so, please describe above how, if not just please mark a cross in "no effect".

Contributed	Constrained	No Effect

3. How many times has your corporation withdrawn any planned or announced M&A due to the publication of SFAS 141 and/or SFAS 142? (If possible, please indicate the main reasons)

SFAS 141	SFAS 142	Both SFAS 141 & 142

4. How many times has your corporation brought forward any M&A activity to try to qualify the deal for pooling of interests method before its ban, avoiding purchase accounting method, effective after July 1, 2001? Please provide further information explaining the main motivations of such action.

_____

_____

5. How would you classify the relevance and impact of SFAS 141 and SFAS 142 new accounting rules to the M&A decision-making and overall activity?

	What is the importance? (1=Low; 2=Medium; 3=High)		
	1	2	3
SFAS 141			
SFAS 142			

Appendix C Crosstabulations for Questionnaire Data

Table C.1 Crosstabulation for SFAS 141 and IT & Financials industries

			IT & Financials		Total
			0	**1 (IT&F)**	
SFAS 141	**0 (no effect)**	***N***	31	17	48
		%	*59.6*	*32.6*	*92.3*
	1	***N***	1	3	4
		%	*1.9*	*5.7*	*7.6*
	Total	***N***	32	20	52
		%	*61.5*	*38.4*	*100.0*

Test	***Value***	***Df***	***P-Value***
Chi-Squared	2.444	1	*0.1180*
Pearson's R	0.2168	50	*0.1226*
Contingency Coefficient	0.2119	-	-
Cramer's V	0.2168	-	-

The hypothesis that FAS 141 and IT & Financials industries are independent at the 95% confidence level cannot be rejected.

Table C.2 Crosstabulation for SFAS 142 and IT & Financials industries

			IT & Financials		Total
			0	**1 (IT&F)**	
SFAS 142	**0 (no effect)**	***N***	29	11	40
		%	*55.7*	*21.1*	*76.9*
	1	***N***	3	9	12
		%	*5.7*	*17.3*	*23.0*
	Total	***N***	32	20	52
		%	*61.5*	*38.4*	*100.0*

Test	***Value***	***Df***	***P-Value***
Chi-Squared	8.799	1	*0.0030*
Pearson's R	0.4114	50	*0.0024*
Contingency Coefficient	0.3804	-	-
Cramer's V	0.4114	-	-

The hypothesis that FAS 142 and IT & Financials industries are independent at the 95% confidence level cannot be rejected.

Table C.3 Crosstabulation for SFAS 141 and IT industry

			IT Industry		Total
			0	1 (IT)	
SFAS 141	0 (no effect)	*N*	46	2	48
		%	*88.4*	*3.8*	*92.3*
	1	*N*	2	2	4
		%	*3.8*	*3.8*	*7.6*
	Total	*N*	48	4	52
		%	*92.3*	*7.6*	*100.0*

Test	*Value*	*Df*	*P-Value*
Chi-Squared	10.924	1	*0.0009*
Pearson's R	0.4583	50	*0.0006*
Contingency Coefficient	0.4167	-	-
Cramer's V	0.4583	-	-

The hypothesis that FAS 141 and IT industry are independent at the 95% confidence level can be rejected.

Table C.4 Crosstabulation for SFAS 142 and IT industry

			IT Industry		Total
			0	**1 (IT)**	
SFAS 142	**0 (no effect)**	***N***	39	1	40
		%	*75.0*	*1.9*	*76.9*
	1	***N***	9	3	12
		%	*17.3*	*5.7*	*23.0*
	Total	***N***	48	4	52
		%	*92.3*	*7.6*	*100.0*

Test	***Value***	***Df***	***P-Value***
Chi-Squared	6.581	1	*0.0103*
Pearson's R	0.3558	50	*0.0096*
Contingency Coefficient	0.3352	-	-
Cramer's V	0.3558	-	-

The hypothesis that FAS 142 and IT industry are independent at the 95% confidence level can be rejected.

Table C.5 Crosstabulation for SFAS 141 and Financials industry

			Financials		Total
			0	**1 (Fin.)**	
SFAS 141	**0 (no effect)**	***N***	33	15	48
		%	*63.4*	*28.8*	*92.3*
	1	***N***	3	1	4
		%	*5.7*	*1.9*	*7.6*
	Total	***N***	36	16	52
		%	*69.2*	*30.7*	*100.0*

Test	***Value***	***Df***	***P-Value***
Chi-Squared	0.068	1	*0.7947*
Pearson's R	-0.0361	50	*0.7995*
Contingency Coefficient	0.0361	-	-
Cramer's V	0.0361	-	-

The hypothesis that FAS 141 and financial industry are independent at the 95% confidence level cannot be rejected.

Table C.6 Crosstabulation for SFAS 142 and Financials industry

			Financials		Total
			0	**1 (Fin.)**	
SFAS 142	**0 (no effect)**	***N***	30	10	40
		%	*57.6*	*19.2*	*76.9*
	1	***N***	6	6	12
		%	*11.5*	*11.5*	*23.0*
	Total	***N***	36	16	52
		%	*69.2*	*30.7*	*100.0*

Test	***Value***	***Df***	***P-Value***
Chi-Squared	2.708	1	*0.0998*
Pearson's R	0.2282	50	*0.1037*
Contingency Coefficient	0.2225	-	-
Cramer's V	0.2282	-	-

The hypothesis that FAS 142 and financial industry are independent at the 95% confidence level cannot be rejected.

Appendix D Goodwill and Other Intangible Assets (OIA), and Impact on Diluted EPS, by Industry

Fig. D.1 Weighted average goodwill and OIA, and diluted EPS, for 2000-01

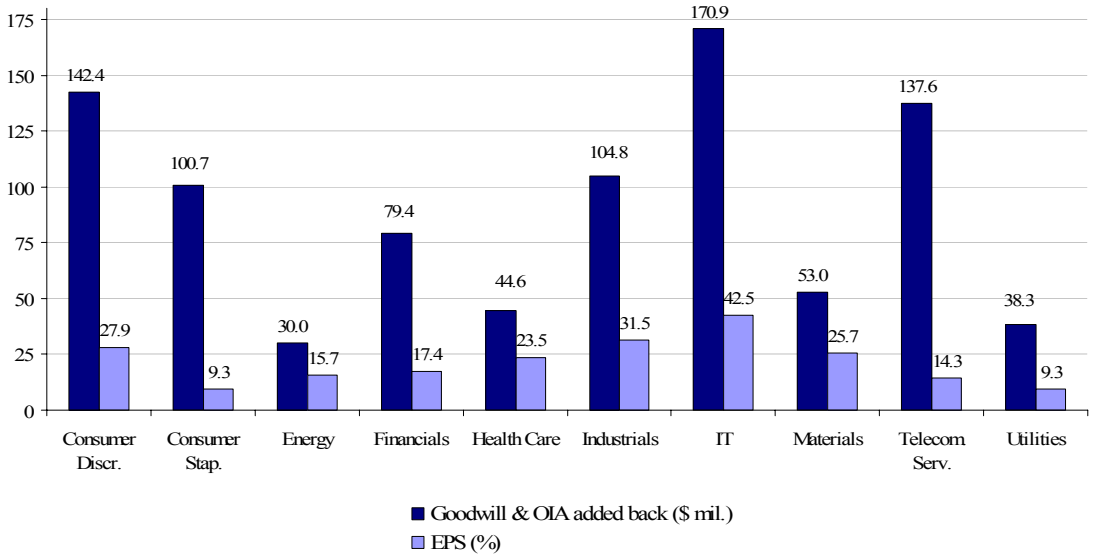
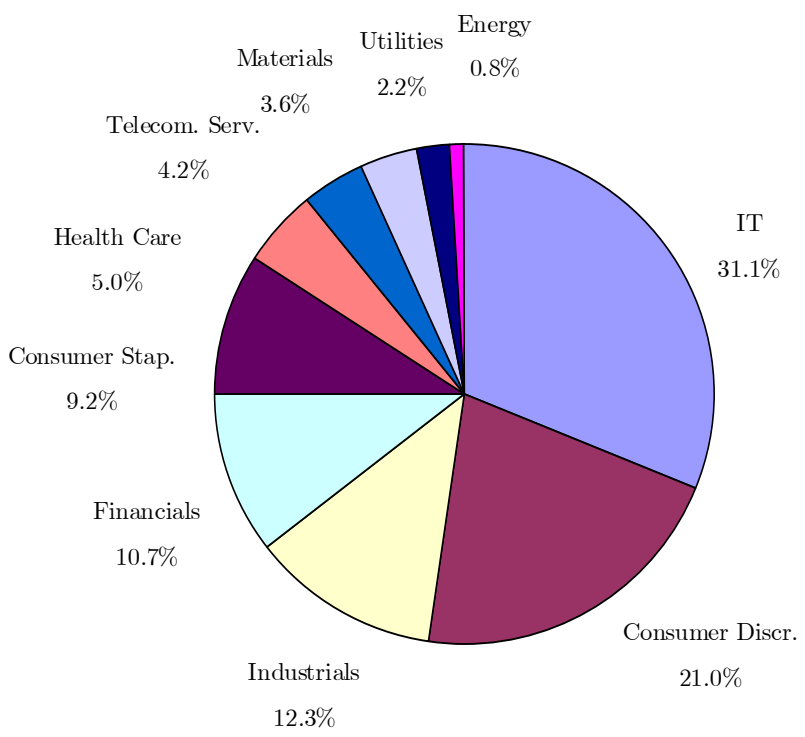


Fig. D.2 Total amounts of goodwill and OIA added back for 2000-01



Appendix E Descriptive Statistics

Table E.1 Descriptive statistics for unadjusted and non-dummy variables

Panel A: Monthly Data (36 months)

	MA	***WITH***	***SP500***	***SP500 Av***	***Fed***	***Fed Av***	***IP***	***GDP***	***MKTC***
Average	548.833	25.1667	1198.02	1205.24	3.95806	3.94537	1011430	9918.82	14184.5
Median	519.5	24.0	1185.78	1187.69	3.885	3.86412	1006950	9896.8	14081.7
Standard deviation	117.881	8.99365	199.342	197.325	2.09499	2.06975	20035.7	111.09	1972.17
Coeff. of variation	21.478%	35.736%	16.6393%	16.3722%	52.9297%	52.4602%	1.98094%	1.12%	13.9037%
Standard error	19.6468	1.49894	33.2237	32.8874	0.349165	0.344959	3339.29	18.5151	328.696
Minimum	323.0	11.0	815.28	854.631	1.16	1.24182	979061	9695.6	10254.7
Maximum	810.0	44.0	1517.68	1485.46	6.86	6.79818	1042310	10095.8	17665.4
Range	487.0	33.0	702.4	630.827	5.7	5.55636	63247.0	400.2	7410.75
Lower quartile	467.0	19.0	1063.46	1078.03	1.82	1.75746	996291	9859.5	12987.1
Upper quartile	633.5	31.0	1380.43	1388.49	5.965	6.00192	1031770	10004.5	15966.5
Stnd. skewness	1.53604	0.89542	-0.37673	-0.52742	0.19347	0.13140	0.26936	-0.000039	-0.333135
Stnd. kurtosis	-0.42321	-0.60315	-1.25989	-1.325	-2.13074	-2.18567	-1.53519	-0.255029	-0.975409

Table E.1 Descriptive statistics for unadjusted and non-dummy variables (continued)

Panel B: Weekly Data (156 weeks)

	MA	***SP500***	***SP500 Av***	***Fed***	***Fed Av***
Average	126.263	1203.95	1205.78	3.91301	3.94314
Median	120.0	1190.38	1192.39	3.87	3.836
Standard deviation	33.8761	196.854	196.87	2.03157	2.03892
Coeff. of variation	26.8298%	16.3507%	16.3272%	51.9182%	51.7081%
Standard error	2.71226	15.761	15.7622	0.162655	0.163244
Minimum	46.0	800.58	799.966	1.18	1.212
Maximum	254.0	1527.45	1512.99	6.86	6.702
Range	208.0	726.87	713.028	5.68	5.49
Lower quartile	102.5	1084.8	1084.54	1.74	1.763
Upper quartile	150.5	1376.1	1382.44	5.955	6.007
Stnd. skewness	2.7034	-0.993522	-1.06723	0.241791	0.205342
Stnd. kurtosis	1.74867	-2.53873	-2.61851	-4.38119	-4.41687

Table E.1 Descriptive statistics for unadjusted and non-dummy variables (continued)

Panel C (1): Daily Data (782 days)				**Panel C (2): Daily Data pre & post 1st July 2001**					
	MA	***SP500***	***Fed***	***MA pre***	***MA post***	***SP500 pre***	***SP500 post***	***Fed pre***	***Fed post***
Nr of days	782	782	782	391	391	391	391	391	391
Average	24.6	1204.94	3.9361	28.6	20.6	1368.91	1040.97	5.82414	2.04808
Median	23	1188.45	3.845	28	20	1383.62	1083.82	5.99	1.76
Standard deviation	10.214	197.366	2.0388	10.4679	8.17375	100.936	117.933	0.80936	0.72209
Coef. of variation	41.437%	16.379%	51.797%	36.498%	39.637%	7.373%	11.329%	13.896%	35.257%
Minimum	0	776.76	1.15	0	0	1103.25	776.76	3.68	1.15
Maximum	78	1527.45	7.03	78	65	1527.45	1234.45	7.03	3.89
Range	78	750.69	5.88	78	65	424.2	457.69	3.35	2.74
Lower quartile	18	1083.82	1.76	21	15	1298.35	916.07	5.48	1.71
Upper quartile	30	1383.62	5.99	35	25	1452.42	1138.65	6.5	2.04
Stnd. skewness	9.0778	-2.2821	0.50428	5.50464	5.90779	-4.50505	-3.30858	-8.5428	11.8291
Stnd. kurtosis	11.174	-5.8323	-9.76242	7.76695	10.8999	-2.25113	-4.84516	0.59247	3.8041

Table E.1 Descriptive statistics for unadjusted and non-dummy variables (continued)

Panel D: Quarterly Data (60 quarters)

	MA	***WITH***	***SP500***	***SP500 Av***	***Fed***	***Fed Av***	***IP***	***GDP***	***MKTC***
Average	2047.85	83.6167	1060.89	1058.93	4.19	4.03393	98.1676	9842.07	13128.4
Median	2058.0	82.0	1137.34	1122.41	4.96	4.80412	100.793	9896.8	13764.5
Standard deviation	369.34	35.331	309.57	309.56	1.9376	1.7772	10.6255	1228.06	4406.13
Coeff. of variation	18.03%	42.25%	29.18%	29.23%	46.24%	44.05%	10.82%	12.47%	33.56%
Standard error	47.681	4.5613	39.965	39.9641	0.2501	0.22943	1.37174	158.542	568.829
Minimum	1369.0	28.0	444.27	451.169	0.14	0.50532	74.886	7715.1	4969.94
Maximum	2863.0	151.0	1526.75	1497.18	7.07	6.51946	112.285	11727.4	21070.3
Range	1494.0	123.0	1082.48	1046.01	6.93	6.01413	37.3987	4012.3	16100.4
Lower quartile	1782.0	51.5	864.0	873.644	2.25	2.10758	92.0473	8806.05	10449.0
Upper quartile	2286.5	116.5	1284.54	1285.99	5.825	5.43423	105.981	10911.0	16548.2
Stnd. skewness	0.32534	0.50833	-1.6971	-1.81721	-1.30144	-1.88173	-2.30515	-0.42460	-0.89977
Stnd. kurtosis	-0.80507	-2.28496	-1.1076	-1.14555	-1.81172	-1.80187	-0.87245	-1.8241	-1.29108

Appendix F Pearson/Spearman Correlation Matrixes

Table F.1 Pearson/Spearman correlation matrixes for coefficient estimates

Panel A: Monthly observations

	MA	*WITH*	*SP500*	*SP500 Av*	*Fed*	*Fed Av*	*IP*	*GDP*	*MKTC*	*Per*	*Per_2*	*Per_3*	*TD*
MA		0.7390	0.8194	0.8021	0.8004	0.7671	0.7968	-0.6926	0.8227	-0.8216	-0.7114	-0.6185	0.3454
		0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0001*	*0.0391*
WITH	0.7098		0.7521	0.7659	0.7075	0.6765	0.6920	-0.6163	0.7489	-0.7363	-0.6766	-0.6213	0.1513
	0.0000		*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*	*0.0000*	*0.0001*	*0.3783*
SP500	0.8384	0.7501		0.9885	0.9065	0.9024	0.7115	-0.8552	0.9894	-0.9464	-0.9379	-0.8978	0.0971
	0.0000	*0.0000*		*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.5731*
SP500 Av	0.8311	0.7582	0.9876		0.9163	0.9104	0.7150	-0.8634	0.9721	-0.9543	-0.9487	-0.9105	0.0576
	0.0000	*0.0000*	*0.0000*		*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.7384*
Fed	0.8000	0.6944	0.8879	0.9019		0.9933	0.8562	-0.7906	0.8565	-0.9396	-0.9139	-0.8492	0.1069
	0.0000	*0.0000*	*0.0000*	*0.0000*		*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.5350*
Fed Av	0.7995	0.6550	0.8947	0.9017	0.9539		0.8496	-0.7816	0.8509	-0.9292	-0.9133	-0.8526	0.0744
	0.0000	*0.0001*	*0.0000*	*0.0000*	*0.0000*		*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.6665*
IP	0.7727	0.6702	0.6963	0.7066	0.7681	0.7596		-0.4755	0.6615	-0.7264	-0.6184	-0.5040	0.1189
	0.0000	*0.0001*	*0.0000*	*0.0000*	*0.0000*	*0.0000*		*0.0034*	*0.0000*	*0.0000*	*0.0001*	*0.0017*	*0.4899*
GDP	-0.7049	-0.6276	-0.8645	-0.8846	-0.8568	-0.8311	-0.5600		-0.8455	0.9303	0.9207	0.8968	0.0401
	0.0000	*0.0002*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0009*		*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.8162*
MKTC	0.8301	0.7342	0.9848	0.9735	0.8503	0.8541	0.6438	-0.8373		-0.9146	-0.9062	-0.8705	0.1315
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0001*	*0.0000*		*0.0000*	*0.0000*	*0.0000*	*0.4447*
Per	-0.8273	-0.7209	-0.9403	-0.9418	-0.9229	-0.9009	-0.6862	0.9411	-0.9094		0.9700	0.9195	-0.0256
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*		*0.0000*	*0.0000*	*0.8821*
Per_2	-0.8273	-0.7209	-0.9403	-0.9418	-0.9229	-0.9009	-0.6862	0.9411	-0.9094	1.0000		0.9862	-0.0107
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*		*0.0000*	*0.9508*
Per_3	-0.8273	-0.7209	-0.9403	-0.9418	-0.9229	-0.9009	-0.6862	0.9411	-0.9094	1.0000	1.0000		0.0035
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*		*0.9837*
TD	0.2666	0.0840	0.0535	0.0306	0.1244	0.1137	0.0216	0.0173	0.0513	-0.0133	-0.0133	-0.0133	
	0.1148	*0.6192*	*0.7514*	*0.8563*	*0.4616*	*0.5010*	*0.8982*	*0.9187*	*0.7614*	*0.9373*	*0.9373*	*0.9373*	

Upper-right cells and lower-left cells diagonal represent Pearson and Spearman correlation coefficients, respectively.
P-Values in italic.
Only non-dummy variables are exhibited.
36 monthly observations.

Table F.1 Pearson/Spearman correlation matrixes for coefficient estimates (continued)

Panel B: Weekly observations

	MA	***SP500***	***SP500 Av***	***Fed***	***Fed Av***	***Per***	***Per_2***	***Per_3***	***TD***
MA		0.6395	0.6397	0.6201	0.6161	-0.6681	-0.5792	-0.5065	0.2886
		0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0003*
SP500	0.6682		0.9954	0.8943	0.8950	-0.9425	-0.9360	-0.8975	0.0375
	0.0000		*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.6420*
SP500 Av	0.6710	0.9935		0.9010	0.9003	-0.9458	-0.9398	-0.9011	0.0425
	0.0000	*0.0000*		*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.5983*
Fed	0.6266	0.8864	0.8910		0.9975	-0.9302	-0.9123	-0.8497	0.0591
	0.0000	*0.0000*	*0.0000*		*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.4639*
Fed Av	0.6299	0.8815	0.8823	0.9803		-0.9282	-0.9114	-0.8492	0.0403
	0.0000	*0.0000*	*0.0000*	*0.0000*		*0.0000*	*0.0000*	*0.0000*	*0.6177*
Per	-0.6797	-0.9388	-0.9399	-0.8998	-0.8947		0.9686	0.9172	-0.0407
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*		*0.0000*	*0.0000*	*0.6143*
Per 2	-0.6797	-0.9388	-0.9399	-0.8998	-0.8947	1.0000		0.9861	-0.0279
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*		*0.0000*	*0.7292*
Per 3	-0.6797	-0.9388	-0.9399	-0.8998	-0.8947	1.0000	1.0000		-0.0193
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*		*0.8112*
TD	0.1950	0.0234	0.0302	0.0834	0.0322	-0.0325	-0.0325	-0.0325	
	0.0152	*0.7711*	*0.7067*	*0.2991*	*0.6882*	*0.6857*	*0.6857*	*0.6857*	

Upper-right cells and lower-left cells diagonal represent Pearson and Spearman correlation coefficients, respectively.
P-Values in italic.
Only non-dummy variables are exhibited.
156 weekly observations.

Table F.1 Pearson/Spearman correlation matrixes for coefficient estimates (continued)

Panel C: Daily observations

	MA	***SP500***	***Fed***	***Per***	***Per_2***	***Per_3***	***Hol***	***E_BoM***	***HS_Ext***
MA		0.4104	0.4027	-0.4307	-0.3694	-0.3202	-0.3032	0.3926	-0.2162
		0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*
SP500	0.4304		0.8965	-0.9435	-0.9371	-0.8981	0.0100	0.0032	-0.0506
	0.0000		*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.7791*	*0.9279*	*0.1571*
Fed	0.4240	0.8819		-0.9271	-0.9096	-0.8469	-0.0036	0.0141	-0.0532
	0.0000	*0.0000*		*0.0000*	*0.0000*	*0.0000*	*0.9206*	*0.6940*	*0.1369*
Per	-0.4371	-0.9387	-0.8941		0.9683	0.9166	-0.0021	-0.0004	0.0563
	0.0000	*0.0000*	*0.0000*		*0.0000*	*0.0000*	*0.9528*	*0.9917*	*0.1153*
Per_2	-0.4371	-0.9387	-0.8941	1.0000		0.9860	-0.0037	-0.0004	0.0524
	0.0000	*0.0000*	*0.0000*	*0.0000*		*0.0000*	*0.9178*	*0.9921*	*0.1431*
Per_3	-0.4371	-0.9387	-0.8941	1.0000	1.0000		-0.0045	-0.0004	0.0502
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*		*0.8996*	*0.9915*	*0.1602*
Hol	-0.2693	0.0082	-0.0200	-0.0021	-0.0021	-0.0021		-0.0591	-0.0330
	0.0000	*0.8177*	*0.5765*	*0.9528*	*0.9528*	*0.9528*		*0.0985*	*0.3565*
B_EoM	0.3282	0.0010	0.0496	-0.0004	-0.0004	-0.0004	-0.0591		-0.0054
	0.0000	*0.9773*	*0.1658*	*0.9917*	*0.9917*	*0.9917*	*0.0989*		*0.8806*
HS_Ext	-0.2151	-0.0532	-0.0584	0.0563	0.0563	0.0563	-0.0330	-0.0054	
	0.0000	*0.1368*	*0.1028*	*0.1157*	*0.1157*	*0.1157*	*0.3564*	*0.8805*	

Upper-right cells and lower-left cells diagonal represent Pearson and Spearman correlation coefficients, respectively.
P-Values in italic.
Weekdays dummy variables not shown.
782 daily observations.

Table F.1 Pearson/Spearman correlation matrixes for coefficient estimates (continued)

Panel D: Quarterly observations

	MA	***SP500***	***SP500 Av***	***Fed***	***Fed Av***	***GDP***	***MKTC***	***IP***	***TD***
MA		0.3812	0.3371	0.6710	0.6604	-0.0553	0.2657	0.1032	0.0917
		0.0027	*0.0084*	*0.0000*	*0.0000*	*0.6749*	*0.0402*	*0.4325*	*0.4859*
SP500	0.4612		0.9888	-0.1020	0.0209	0.7587	0.9593	0.8869	-0.0599
	0.0004		*0.0000*	*0.4380*	*0.8741*	*0.0000*	*0.0000*	*0.0000*	*0.6492*
SP500 Av	0.4138	0.9827		-0.1276	-0.0055	0.7839	0.9566	0.9068	-0.0812
	0.0015	*0.0000*		*0.3314*	*0.9670*	*0.0000*	*0.0000*	*0.0000*	*0.5376*
Fed	0.6267	-0.0492	-0.0600		0.9399	-0.5249	-0.2147	-0.4084	-0.0252
	0.0000	*0.7054*	*0.6449*		*0.0000*	*0.0000*	*0.0995*	*0.0012*	*0.8482*
Fed Av	0.6054	0.0454	0.0402	0.8923		-0.4411	-0.1044	-0.3060	-0.0178
	0.0000	*0.7273*	*0.7576*	*0.0000*		*0.0004*	*0.4274*	*0.0174*	*0.8928*
GDP	-0.0565	0.6615	0.6896	-0.5597	-0.5160		0.8877	0.9597	-0.0213
	0.6642	*0.0000*	*0.0000*	*0.0000*	*0.0001*		*0.0000*	*0.0000*	*0.8719*
MKTC	0.3238	0.9438	0.9420	-0.1996	-0.1275	0.8308		0.9480	-0.0489
	0.0129	*0.0000*	*0.0000*	*0.1253*	*0.3273*	*0.0000*		*0.0000*	*0.7108*
IP	0.1206	0.8053	0.8313	-0.3675	-0.2990	0.9519	0.9270		-0.0438
	0.3543	*0.0000*	*0.0000*	*0.0048*	*0.0217*	*0.0000*	*0.0000*		*0.7395*
TD	-0.0141	-0.0833	-0.1100	-0.1175	-0.1009	0.0259	-0.0629	-0.0224	
	0.9134	*0.5224*	*0.3983*	*0.3668*	*0.4382*	*0.8421*	*0.6292*	*0.8631*	

Upper-right cells and lower-left cells diagonal represent Pearson and Spearman correlation coefficients, respectively.
P-Values in italic.
Only non-dummy variables are exhibited.
60 quarterly observations.

Appendix G Regression Analysis for Hypotheses One and Two

Table G.1 Regression models outputs and tests results for hypothesis one

$$MA_t = \alpha + \sum_{j=1}^{3} \beta_j Per_t^j + \sum_{i=1}^{11} \delta_i Month_{i,t} + \sum_{l=1}^{2} \lambda_l SP500_{l,t} + \sum_{m=1}^{2} \zeta_m Fed_{m,t} + \omega\, IP_t + \\ + \phi\, MKTC_t + \gamma\, GDP_t + \varphi\, TD_t + \theta\, Event_t + \xi\, MA_{t-1} + \varepsilon_t \tag{19}$$

Backward elimination regression, with all variables left in the model significant at the 0.05 level:

Panel A: Estimation and tests results for model using monthly M&A data

Parameter	Estimate	P-Value	T Statistic	Standard Error
Intercept	-245.992	*0.1057*	-1.67637	146.741
Per	-38.3226	*0.0001*	-4.68077	8.18724
Per_2	2.05267	*0.0047*	3.08964	0.66437
Per_3	-0.02809	*0.0242*	-2.3933	0.01173
Aug	-58.0454	*0.0039*	-3.16688	18.3289
Nov	-52.9105	*0.0060*	-2.99344	17.6755
SP500	0.35015	*0.0003*	4.23733	0.08263
Fed	32.7201	*0.0297*	2.30109	14.2194
TD	18.6442	*0.0000*	5.36609	3.47444
ANOVA *F* value	68.49	*0.0000*		
R-squared	95.469%			
R^2 Adjusted for d. f.	94.075%			
N used (*read*)	35 (*36*)			
Durbin-Watson D	2.07124	*0.2912*		
Chi-Squared (13 d. f.)	4.77137	*0.979887*		
Shapiro-Wilk W	0.95536	*0.212621*		
Skewness Z-score	1.37276	*0.169827*		
Kurtosis Z-score	1.10334	*0.269877*		
Kolmogorov-Smirnov	0.081671	*0.973699*		
Modified K-S D	0.494093	*≥ 0.10**		
Cramer-Von Mises W^2	0.048242	*0.52555**		
Watson U^2	0.038493	*0.64584**		
Anderson-Darling A^2	0.386077	*0.37226**		
Kuiper V	0.152129	*≥ 0.10**		
Box-Pierce Test	8.90604	*0.630565*		

* P-Value has been compared to tables of critical values specially constructed for fitting the selected distribution. Except for the Chi-Squared Test, other P-values are based on general tables.

Table G.1 Regression models outputs and tests results for hypothesis one (continued)

$$MA_t = \alpha + \sum_{j=1}^{3} \beta_j Per_t^j + \sum_{i=1}^{4} \delta_i Week_{i,t} + \sum_{l=1}^{2} \lambda_l SP500_{l,t} + \sum_{m=1}^{2} \zeta_m Fed_{m,t} + \\ + \phi\, E\_BoM_t + \varphi\, TD_t + \theta\, Event_t + \psi\, Event\_ED_t + \xi\, MA_{t-1} + \varepsilon_t \tag{20}$$

Backward elimination regression, with all variables left in the model significant at the 0.05 level:

Panel B: Estimation and tests results for model using weekly M&A data

Parameter	Estimate	P-Value	T Statistic	Standard Error
Intercept	-28.3688	*0.4957*	-0.683	41.5356
Per	-2.64935	*0.0000*	-4.93264	0.537105
Per_ 2	0.034402	*0.0013*	3.2878	0.010463
Per_ 3	-0.000118	*0.0070*	-2.73458	0.000043
Week1	13.6826	*0.0033*	2.98494	4.58386
Week3	7.85482	*0.0259*	2.25012	3.49085
E_ BoM	22.113	*0.0000*	4.60669	4.80019
SP500	0.061473	*0.0069*	2.74118	0.022425
Fed	9.30303	*0.0264*	2.24266	4.14821
TD	15.7606	*0.0000*	5.9524	2.64778
ANOVA *F* value	49.60	*0.0000*		
R-squared	75.480%			
R^2 Adjusted for d. f.	73.958%			
N used (*read*)	155 (*156*)			
Durbin-Watson D	1.80846	*0.1172*		
Chi-Squared (26 d. f.)	33.0323	*0.161153*		
Shapiro-Wilk W	0.96908	*0.037554*		
Skewness Z-score	1.8038	*0.071262*		
Kurtosis Z-score	1.0161	*0.309581*		
Kolmogorov-Smirnov	0.059553	*0.64161*		
Modified K-S D	0.744899	*≥ 0.10**		
Cramer-Von Mises W^2	0.078805	*0.21315**		
Watson U^2	0.059180	*0.34597**		
Anderson-Darling A^2	0.641829	*0.09247**		
Kuiper V	0.096185	*≥ 0.10**		
Box-Pierce Test	23.7014	*0.478771*		

* P-Value has been compared to tables of critical values specially constructed for fitting the selected distribution. Except for the Chi-Squared Test, other P-values are based on general tables.

Table G.1 Regression models outputs and tests results for hypothesis one (continued)

$$MA_t = \alpha + \sum_{j=1}^{3} \beta_j Per_t^j + \sum_{i=1}^{4} \delta_i Weekday_{i,t} + \lambda\, SP500_t + \zeta\, Fed_t + \varphi\, Hol_t + \\ + \varpi\, HS\_Ext_t + \phi\, E\_BoM_t + \theta\, Event_t + \psi\, Event\_ED_t + \xi\, MA_{t-1} + \varepsilon_t \tag{21}$$

Backward elimination regression, with all variables left in the model significant at the 0.05 level:

Panel C: Estimation and tests results for model using daily M&A data

Parameter	Estimate	P-Value	T Statistic	Standard Error
Intercept	13.1969	*0.0221*	2.288	5.76786
Per	-0.04283	*0.0000*	-8.81313	0.004860
Per_2	0.00004	*0.0000*	7.65654	0.000005
Mon	8.74325	*0.0000*	11.3343	0.771398
Tue	6.03012	*0.0000*	7.8878	0.764487
Wed	4.21136	*0.0000*	5.5252	0.762209
Thu	3.79882	*0.0000*	5.00339	0.759248
Hol	-17.5629	*0.0000*	-12.8825	1.36332
HS_Ext	-11.9676	*0.0000*	-6.72071	1.7807
E_BoM	12.6377	*0.0000*	15.1327	0.835129
SP500	0.01008	*0.0086*	2.62597	0.003841
MA_lag	0.09517	*0.0009*	3.33449	0.028543
ANOVA *F* value	95.34	*0.0000*		
R-squared	57.694%			
R^2 Adjusted for d. f.	57.088%			
N used (*read*)	781 (*782*)			
Durbin-Watson D	2.00652	*0.4637*		
Chi-Squared (52 d. f.)	41.3188	*0.855999*		
Shapiro-Wilk W	0.98240	*0.077732*		
Skewness Z-score	3.37554	*0.000736*		
Kurtosis Z-score	4.67686	*0.000002*		
Kolmogorov-Smirnov	0.02704	*0.617458*		
Modified K-S D	0.75912	≥ *0.10*		
Cramer-Von Mises W^2	0.16988	≥ *0.10*		
Watson U^2	0.13283	≥ *0.10*		
Anderson-Darling A^2	1.2108	≥ *0.10*		
Kuiper V	0.04792	≥ *0.10*		
Box-Pierce Test	36.9366	*0.044401*		

Table G.1 Regression models outputs and tests results for hypothesis one (continued)

$$Log\ MA_t = \alpha + \sum_{i=1}^{3} \delta_i Quarter_{i,t} + \sum_{l=1}^{2} \lambda_l SP500_{l,t} + \sum_{m=1}^{2} \zeta_m Fed_{m,t} + \omega\ IP_t + \\ + \phi\ MKTC_t + \gamma\ GDP_t + \varphi\ TD_t + \theta\ Event_t + \xi\ Log\ MA_{t-1} + \varepsilon_t \quad (18)$$

Backward elimination regression, with all variables left in the model significant at the 0.05 level:

Panel D: Estimation and tests results for model using quarterly M&A data

Parameter	Estimate	P-Value	T Statistic	Standard Error
Intercept	1.22817	*0.0000*	4.45549	0.275653
SP500	-0.000253	*0.0012*	-3.43246	0.000073
GDP	-0.000062	*0.0000*	-5.25043	0.000011
MKTC	0.000032	*0.0000*	4.50368	0.000007
Log MA_ lag	0.76621	*0.0000*	10.3664	0.073912
ANOVA *F* value	66.13	*0.0000*		
R-squared	83.04%			
R^2 Adjusted for d. f.	81.78%			
N used (*read*)	59 (60)			
Durbin-Watson D	2.00502	*0.3195*		
Chi-Squared (17 d. f.)	15.2375	*0.578382*		
Shapiro-Wilk W	0.97507	*0.483264*		
Skewness Z-score	0.32828	*0.742692*		
Kurtosis Z-score	0.62073	*0.534775*		
Kolmogorov-Smirnov	0.08985	*0.72748*		
Modified K-S D	0.69924	*≥ 0.10**		
Cramer-Von Mises W^2	0.05490	*0.43549**		
Watson U^2	0.05457	*0.39812**		
Anderson-Darling A^2	0.36163	*0.433559*		
Kuiper V	0.14359	*≥ 0.10**		
Box-Pierce Test	24.2229	*0.187742*		

* P-Value has been compared to tables of critical values specially constructed for fitting the selected distribution. Except for the Chi-Squared Test, other P-values are based on general tables.

Table G.2 Regression models outputs and tests results for hypothesis two

$$WITH_t = \alpha + \sum_{j=1}^{3} \beta_j Per_t^j + \sum_{i=1}^{11} \delta_i Month_{i,t} + \sum_{l=1}^{2} \lambda_l SP500_{l,t} + \sum_{m=1}^{2} \zeta_m Fed_{m,t} + \\ + \phi\, MKTC_t + \gamma\, GDP_t + \omega\, IP_t + \varphi\, TD_t + \rho\, MA_t + \psi\, Event_t + \\ + \xi\, WITH_{t-1} + \varepsilon_t \tag{23}$$

Backward elimination regression, with all variables left in the model significant at the 0.05 level:

Panel A: Estimation and tests results for model using monthly *WITH* data

Parameter	Estimate	P-Value	T Statistic	Standard Error
Intercept	-46.4071	*0.0285*	-2.32547	19.956
Per	-9.00213	*0.0000*	-6.27822	1.43387
Per_2	0.57598	*0.0000*	5.68897	0.10124
Per_3	-0.00916	*0.0000*	-5.39809	0.00169
Aug	-9.58472	*0.0025*	-3.36588	2.84761
Oct	-6.79894	*0.0133*	-2.66549	2.55073
Fed	9.80755	*0.0001*	4.60347	2.13047
MKTC	0.00409	*0.0012*	3.66945	0.00111
MA	-0.07593	*0.0034*	-3.23117	0.02349
TD	1.85311	*0.0117*	2.71929	0.68146
ANOVA *F* value	20.80	*0.0000*		
R-squared	88.218%			
R^2 Adjusted for d. f.	83.976%			
N used (*read*)	35 (*36*)			
Durbin-Watson D	2.28273	*0.5118*		
Chi-Squared (13 d. f.)	16.6575	*0.21544*		
Shapiro-Wilk W	0.94590	*0.10997*		
Skewness Z-score	0.96900	*0.33254*		
Kurtosis Z-score	-0.61912	*0.53583*		
Kolmogorov-Smirnov	0.15148	*0.40288*		
Modified K-S D	0.91642	*<0.05**	*(≥0.10)*	
Cramer-Von Mises W^2	0.11419	*0.0683**		
Watson U^2	0.10532	*0.0710**		
Anderson-Darling A^2	0.63708	*0.0889**		
Kuiper V	0.22084	*≥0.10**		
Box-Pierce Test	6.46306	*0.84075*		

* P-Value has been compared to tables of critical values specially constructed for fitting the selected distribution. Except for the Chi-Squared Test, other P-values are based on general tables.

Table G.2 Regression models outputs and tests results for hypothesis two (continued)

$$WITH_t = \alpha + \sum_{i=1}^{3} \delta_i Quarter_{i,t} + \sum_{l=1}^{2} \lambda_l SP500_{l,t} + \sum_{m=1}^{2} \zeta_m Fed_{m,t} + \phi\, MKTC_t + \\ + \gamma\, GDP_t + \omega\, IP_t + \varphi\, TD_t + \rho\, MA_t + \psi\, Event_t + \xi\, WITH_{t-1} + \varepsilon_t \tag{24}$$

Backward elimination regression, with all variables left in the model significant at the 0.05 level:

Panel B: Estimation and tests results for model using quarterly *WITH* data

Parameter	Estimate	P-Value	T Statistic	Standard Error
Intercept	61.7643	*0.5862*	0.54767	112.776
SP500 Av	0.12880	*0.0000*	6.00736	0.02144
Fed	5.02267	*0.0007*	3.61398	1.38979
MKTC	-0.00652	*0.0015*	-3.35554	0.00194
IP	61.7643	*0.0002*	0.54767	112.776
TD	0.12880	*0.0126*	6.00736	0.02144
ANOVA *F* value	65.03	*0.0000*		
R-squared	85.98%			
R^2 Adjusted for d. f.	84.66%			
N used (*read*)	59 (*60*)			
Durbin-Watson D	1.9579	*0.2741*		
Chi-Squared (17 d. f.)	14.5593	*0.62719*		
Shapiro-Wilk W	0.98238	*0.77596*		
Skewness Z-score	0.97291	*0.33059*		
Kurtosis Z-score	0.64756	*0.51726*		
Kolmogorov-Smirnov	0.05177	*0.99741*		
Modified K-S D	0.40291	*≥0.10**		
Cramer-Von Mises W^2	0.02990	*0.8453**		
Watson U^2	0.02498	*0.8920**		
Anderson-Darling A^2	0.21435	*0.8427**		
Kuiper V	0.09383	*≥0.10**		
Box-Pierce Test	16.4665	*0.62596*		

* P-Value has been compared to tables of critical values specially constructed for fitting the selected distribution. Except for the Chi-Squared Test, other P-values are based on general tables.

Table G.3 Résumé of regression analysis for hypothesis one and two

Selected	Hypothesis One				*Hypothesis Two*	
Variables[†]	**Quarterly**	**Monthly**	**Weekly**	**Daily**	***Quarterly***	***Monthly***
Intercept	1.22817 *	-245.992	-28.3688	13.1969 **	*61.7643*	*-46.4071 ** *
Per	-	-38.3226 *	-2.64935 *	-0.04283 *	-	*-9.00213 ** *
Per_2	-	2.05267 *	0.03440 *	0.00004 *	-	*0.57598 ** *
Per_3	-	-0.02809 **	-0.00011 *	-	-	*-0.00916 ** *
SP500	-0.00025 *	0.35015 *	0.06147 *	0.01008 *	-	-
SP500_Av	-	-	-	-	*0.12880 ** *	-
Fed	-	32.7201 **	9.30303 **	-	*5.02267 ** *	*9.80755 ** *
GDP	-0.00006 *	-	-	-	-	-
MKTC	0.000032 *	-	-	-	*-0.0065 ** *	*0.00409 ** *
IP	-	-	-	-	*61.7643 ** *	-
Aug	-	-58.0454 *	-	-	-	*-9.58472 ** *
Oct	-	-	-	-	-	*-6.79894 ***
Nov	-	-52.9105 *	-	-	-	-
Week1	-	-	13.6826 *	-	-	-
Week3	-	-	7.85482 **	-	-	-
Mon	-	-	-	8.74325 *	-	-
Tue	-	-	-	6.03012 *	-	-
Wed	-	-	-	4.21136 *	-	-
Thu	-	-	-	3.79882 *	-	-
TD	-	18.6442 *	15.7606 *	-	*0.12880 ***	*1.85311 ***
E_BoM	-	-	22.1130 *	12.6377 *	-	-
Hol	-	-	-	-17.5629 *	-	-
HS_Ext	-	-	-	-11.9676 *	-	-
MA	-	-	-	-	-	*-0.07593 ** *
MA_lag	0.76621 *[‡]	-	-	0.09517 *	-	-
***F* value**	66.13 *	68.49 *	49.60 *	95.34 *	*65.03 ** *	*20.80 ** *
Adj. R^2	81.78%	94.08%	73.96%	57.09%	*84.66%*	*83.97%*
N read	60	36	156	782	*60*	*36*

* Significant at 0.01 level

** Significant at 0.05 level

*** Significant at 0.10 level

[†] The models have employed adjusted sets of variables according to their nature, being worthwhile to recall that *Event_ED* variable was not used in the models employing quarterly and monthly data.

[‡] *Log MA_lag.*

Appendix H Residuals' Autocorrelation Tables and Correlograms

Table H.1 Autocorrelations for hypothesis one

Panel A: Estimated autocorrelations for residuals of model using monthly data

Lag	*Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limit*	*Upper 95.0% Prob. Limit*
1	-0.052813	0.169031	-0.331295	0.331295
2	-0.282255	0.169502	-0.332218	0.332218
3	-0.254428	0.182437	-0.357571	0.357571
4	-0.056948	0.192308	-0.376917	0.376917
5	0.113448	0.192789	-0.37786	0.37786
6	-0.000987	0.194687	-0.381581	0.381581
7	0.146001	0.194687	-0.381581	0.381581
8	-0.1558	0.197791	-0.387664	0.387664
9	-0.087075	0.201267	-0.394476	0.394476
10	0.094923	0.20234	-0.39658	0.39658
11	0.170207	0.203609	-0.399066	0.399066

Table H.1 Autocorrelations for hypothesis one (continued)

Panel B: Estimated autocorrelations for residuals of model using weekly data

Lag	*Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limit*	*Upper 95.0% Prob. Limit*
1	0.092073	0.0803219	-0.157428	0.157428
2	-0.071949	0.081	-0.158757	0.158757
3	-0.12655	0.0814113	-0.159563	0.159563
4	-0.120454	0.0826707	-0.162032	0.162032
5	-0.015722	0.0837953	-0.164236	0.164236
6	-0.144914	0.0838143	-0.164273	0.164273
7	-0.057355	0.0854155	-0.167412	0.167412
8	0.038933	0.0856636	-0.167898	0.167898
9	0.1028	0.0857777	-0.168122	0.168122
10	0.114209	0.0865689	-0.169672	0.169672
11	-0.011530	0.0875356	-0.171567	0.171567
12	-0.104217	0.0875454	-0.171586	0.171586
13	-0.086147	0.0883422	-0.173148	0.173148
14	0.051623	0.0888825	-0.174207	0.174207
15	0.011965	0.0890757	-0.174586	0.174586
16	-0.072273	0.0890861	-0.174606	0.174606
17	-0.120016	0.0894636	-0.175346	0.175346
18	-0.055463	0.0904964	-0.17737	0.17737
19	0.013334	0.0907154	-0.177799	0.177799
20	0.083738	0.090728	-0.177824	0.177824
21	-0.023965	0.0912253	-0.178799	0.178799
22	-0.046902	0.0912659	-0.178878	0.178878
23	0.067750	0.0914213	-0.179183	0.179183
24	0.024266	0.0917446	-0.179817	0.179817

Table H.1 Autocorrelations for hypothesis one (continued)

Panel C: Estimated autocorrelations for residuals of model using daily data

Lag	*Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limi*†	*Upper 95.0% Prob. Limit*†
1	-0.0048219	0.0357828	-0.0701332	0.0701332
2	0.0076419	0.0357836	-0.0701348	0.0701348
3	0.0574489	0.0357857	-0.0701389	0.0701389
4	*0.0884542*	0.0359036	-0.07037	0.07037
5	0.0055488	0.0361816	-0.0709147	0.0709147
6	0.0135122	0.0361827	-0.0709169	0.0709169
7	0.047677	0.0361891	-0.0709295	0.0709295
8	-0.015261	0.0362695	-0.071087	0.071087
9	-0.0576198	0.0362777	-0.0711031	0.0711031
10	0.0328195	0.0363947	-0.0713324	0.0713324
11	*0.0715474*	0.0364326	-0.0714066	0.0714066
12	*-0.0877919*	0.036612	-0.0717584	0.0717584
13	-0.0676372	0.0368806	-0.0722847	0.0722847
14	-0.0411988	0.0370391	-0.0725954	0.0725954
15	0.0101187	0.0370977	-0.0727103	0.0727103
16	-0.0156709	0.0371012	-0.0727172	0.0727172
17	-0.0512292	0.0371097	-0.0727338	0.0727338
18	-0.010793	0.0372001	-0.0729111	0.0729111
19	-0.0390522	0.0372042	-0.0729189	0.0729189
20	0.0089166	0.0372566	-0.0730217	0.0730217
21	0.0102154	0.0372593	-0.0730271	0.0730271
22	0.0466923	0.0372629	-0.0730341	0.0730341
23	-0.0401955	0.0373378	-0.0731808	0.0731808
24	-0.0357627	0.0373931	-0.0732893	0.0732893

Values outside autocorrelations limits at the 95% confidence level in italic.

† Autocorrelations limits at the 99% confidence level:

±0.0924818 at fourth lag,

±0.0938442 at eleventh lag, and

±0.0943065 at twelfth lag.

Table H.1 Autocorrelations for hypothesis one (continued)

Panel D: Estimated autocorrelations for residuals of model using quarterly data

Lag	*Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limit*	*Upper 95.0% Prob. Limit*
1	-0.022356	0.130189	-0.255166	0.255166
2	0.162279	0.130254	-0.255294	0.255294
3	0.204205	0.133637	-0.261924	0.261924
4	0.179265	0.138825	-0.272092	0.272092
5	-0.000274	0.142694	-0.279676	0.279676
6	-0.12747	0.142694	-0.279677	0.279677
7	-0.048420	0.144612	-0.283434	0.283434
8	-0.012906	0.144886	-0.283972	0.283972
9	-0.185057	0.144906	-0.28401	0.28401
10	-0.263525	0.148857	-0.291756	0.291756
11	-0.108787	0.156565	-0.306862	0.306862
12	-0.191542	0.157841	-0.309363	0.309363
13	-0.155496	0.161733	-0.316991	0.316991
14	-0.214075	0.164247	-0.321919	0.321919
15	-0.185775	0.16891	-0.331058	0.331058
16	-0.016555	0.172338	-0.337777	0.337777
17	-0.039167	0.172365	-0.33783	0.33783
18	-0.140723	0.172516	-0.338126	0.338126
19	0.113057	0.174451	-0.341918	0.341918

Table H.2 Autocorrelations for hypothesis two

Panel A: Estimated autocorrelations for residuals of monthly data model

Lag	*Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limit*	*Upper 95.0% Prob. Limit*
1	-0.18472	0.169031	-0.331295	0.331295
2	-0.076701	0.174703	-0.342413	0.342413
3	-0.022913	0.175663	-0.344293	0.344293
4	-0.186152	0.175748	-0.344461	0.344461
5	-0.035102	0.181294	-0.355331	0.355331
6	0.008586	0.181488	-0.355711	0.355711
7	-0.096937	0.1815	-0.355734	0.355734
8	-0.10906	0.182973	-0.358621	0.358621
9	0.127963	0.184821	-0.362243	0.362243
10	0.23195	0.187335	-0.367171	0.367171
11	-0.129246	0.195368	-0.382916	0.382916

Fig. H.2 Autocorrelations for hypothesis two (continued)

Panel B: Estimated autocorrelations for residuals of quarterly data model

Lag	*Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limit*	*Upper 95.0% Prob. Limit*
1	0.009070	0.130189	-0.255166	0.255166
2	0.145194	0.1302	-0.255187	0.255187
3	-0.19348	0.132916	-0.26051	0.26051
4	-0.022855	0.137606	-0.269704	0.269704
5	-0.175231	0.137671	-0.26983	0.26983
6	0.066268	0.141401	-0.27714	0.27714
7	0.095012	0.141926	-0.27817	0.27817
8	0.208951	0.143	-0.280275	0.280275
9	0.030555	0.148084	-0.290241	0.290241
10	-0.209988	0.148191	-0.29045	0.29045
11	-0.084516	0.153152	-0.300172	0.300172
12	-0.205582	0.15394	-0.301717	0.301717
13	-0.118073	0.158525	-0.310704	0.310704
14	-0.035870	0.160009	-0.313612	0.313612
15	0.077841	0.160145	-0.313879	0.313879
16	0.103329	0.160785	-0.315133	0.315133
17	0.026558	0.161907	-0.317332	0.317332
18	-0.057702	0.16198	-0.317476	0.317476
19	-0.041870	0.162328	-0.318158	0.318158

Table H.3 Partial autocorrelations for hypothesis one

Panel A: Estimated partial autocorrelations for model using monthly data

Lag	*Partial Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limit*	*Upper 95.0% Prob. Limit*
1	-0.052813	0.169031	-0.331295	0.331295
2	-0.285842	0.169031	-0.331295	0.331295
3	-0.315257	0.169031	-0.331295	0.331295
4	-0.243145	0.169031	-0.331295	0.331295
5	-0.141458	0.169031	-0.331295	0.331295
6	-0.242315	0.169031	-0.331295	0.331295
7	0.007533	0.169031	-0.331295	0.331295
8	-0.273265	0.169031	-0.331295	0.331295
9	-0.223778	0.169031	-0.331295	0.331295
10	-0.111447	0.169031	-0.331295	0.331295
11	0.005124	0.169031	-0.331295	0.331295

Table H.3 Partial autocorrelations for hypothesis one (continued)

Panel B: Estimated partial autocorrelations for model using weekly data

Lag	*Partial Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limit*†	*Upper 95.0% Prob. Limit*†
1	0.0920731	0.0803219	-0.157428	0.157428
2	-0.0811147	0.0803219	-0.157428	0.157428
3	-0.113624	0.0803219	-0.157428	0.157428
4	-0.106537	0.0803219	-0.157428	0.157428
5	-0.0143037	0.0803219	-0.157428	0.157428
6	*-0.179762*	0.0803219	-0.157428	0.157428
7	-0.0663485	0.0803219	-0.157428	0.157428
8	0.0037977	0.0803219	-0.157428	0.157428
9	0.0493395	0.0803219	-0.157428	0.157428
10	0.0578553	0.0803219	-0.157428	0.157428
11	-0.0229596	0.0803219	-0.157428	0.157428
12	-0.095774	0.0803219	-0.157428	0.157428
13	-0.0615547	0.0803219	-0.157428	0.157428
14	0.070004	0.0803219	-0.157428	0.157428
15	-0.0085935	0.0803219	-0.157428	0.157428
16	-0.0757551	0.0803219	-0.157428	0.157428
17	-0.125864	0.0803219	-0.157428	0.157428
18	-0.0894381	0.0803219	-0.157428	0.157428
19	-0.0657625	0.0803219	-0.157428	0.157428
20	0.0434247	0.0803219	-0.157428	0.157428
21	-0.0639771	0.0803219	-0.157428	0.157428
22	-0.0724003	0.0803219	-0.157428	0.157428
23	0.0269906	0.0803219	-0.157428	0.157428
24	-0.0430147	0.0803219	-0.157428	0.157428

Values outside autocorrelations limits at the 95% confidence level in italic.

† Autocorrelations limits at the 99% confidence level: ±0.206896.

Table H.3 Partial autocorrelations for hypothesis one (continued)

Panel C: Estimated partial autocorrelations for model using daily data

Lag	*Partial Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limit*†	*Upper 95.0% Prob. Limit*†
1	-0.0048219	0.0357828	-0.0701332	0.0701332
2	0.0076188	0.0357828	-0.0701332	0.0701332
3	0.0575269	0.0357828	-0.0701332	0.0701332
4	*0.089274*	0.0357828	-0.0701332	0.0701332
5	0.0061086	0.0357828	-0.0701332	0.0701332
6	0.0090890	0.0357828	-0.0701332	0.0701332
7	0.0380153	0.0357828	-0.0701332	0.0701332
8	-0.023337	0.0357828	-0.0701332	0.0701332
9	-0.0617151	0.0357828	-0.0701332	0.0701332
10	0.0253541	0.0357828	-0.0701332	0.0701332
11	0.0686951	0.0357828	-0.0701332	0.0701332
12	*-0.0793218*	0.0357828	-0.0701332	0.0701332
13	-0.0659414	0.0357828	-0.0701332	0.0701332
14	-0.054861	0.0357828	-0.0701332	0.0701332
15	0.0106493	0.0357828	-0.0701332	0.0701332
16	0.0100143	0.0357828	-0.0701332	0.0701332
17	-0.0413918	0.0357828	-0.0701332	0.0701332
18	-0.0098634	0.0357828	-0.0701332	0.0701332
19	-0.0247946	0.0357828	-0.0701332	0.0701332
20	0.0251668	0.0357828	-0.0701332	0.0701332
21	0.0080918	0.0357828	-0.0701332	0.0701332
22	0.0447019	0.0357828	-0.0701332	0.0701332
23	-0.0238114	0.0357828	-0.0701332	0.0701332
24	-0.0320228	0.0357828	-0.0701332	0.0701332

Values outside autocorrelations limits at the 95% confidence level in italic.

† Autocorrelations limits at the 99% confidence level: ±0.0921706.

Table H.3 Partial autocorrelations for hypothesis one (continued)

Panel D: Estimated partial autocorrelations for model using quarterly data

Lag	*Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limit*†	*Upper 95.0% Prob. Limit*†
1	-0.022356	0.130189	-0.255166	0.255166
2	0.16186	0.130189	-0.255166	0.255166
3	0.216646	0.130189	-0.255166	0.255166
4	0.181291	0.130189	-0.255166	0.255166
5	-0.049060	0.130189	-0.255166	0.255166
6	*-0.258334*	0.130189	-0.255166	0.255166
7	-0.181277	0.130189	-0.255166	0.255166
8	0.003929	0.130189	-0.255166	0.255166
9	-0.053409	0.130189	-0.255166	0.255166
10	-0.195992	0.130189	-0.255166	0.255166
11	-0.109621	0.130189	-0.255166	0.255166
12	-0.140429	0.130189	-0.255166	0.255166
13	-0.037179	0.130189	-0.255166	0.255166
14	-0.082031	0.130189	-0.255166	0.255166
15	-0.195368	0.130189	-0.255166	0.255166
16	-0.060235	0.130189	-0.255166	0.255166
17	0.038286	0.130189	-0.255166	0.255166
18	-0.111679	0.130189	-0.255166	0.255166
19	0.020714	0.130189	-0.255166	0.255166

Value outside autocorrelations limits at the 95% confidence level in italic.

† Autocorrelations limits at the 99% confidence level: ±0.335345.

Table H.4 Partial autocorrelations for hypothesis two

Panel A: Estimated autocorrelations for residuals of monthly data model

Lag	*Partial Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limit*	*Upper 95.0% Prob. Limit*
1	-0.18472	0.169031	-0.3313	0.331295
2	-0.114738	0.169031	-0.3313	0.331295
3	-0.062845	0.169031	-0.3313	0.331295
4	-0.22376	0.169031	-0.3313	0.331295
5	-0.145017	0.169031	-0.3313	0.331295
6	-0.093019	0.169031	-0.3313	0.331295
7	-0.1885	0.169031	-0.3313	0.331295
8	-0.29461	0.169031	-0.3313	0.331295
9	-0.099792	0.169031	-0.3313	0.331295
10	0.155445	0.169031	-0.3313	0.331295
11	-0.146222	0.169031	-0.3313	0.331295

Table H.4 Partial autocorrelations for hypothesis two (continued)

Panel B: Estimated autocorrelations for residuals of quarterly data model

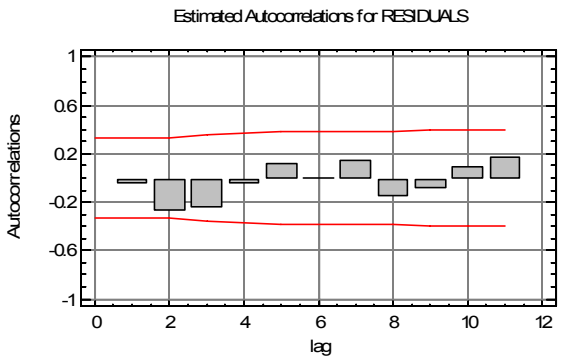
Lag	*Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limit*†	*Upper 95.0% Prob. Limit*†
1	0.009070	0.130189	-0.255166	0.255166
2	0.145123	0.130189	-0.255166	0.255166
3	-0.200154	0.130189	-0.255166	0.255166
4	-0.037477	0.130189	-0.255166	0.255166
5	-0.123537	0.130189	-0.255166	0.255166
6	0.048401	0.130189	-0.255166	0.255166
7	0.131955	0.130189	-0.255166	0.255166
8	0.14621	0.130189	-0.255166	0.255166
9	0.005764	0.130189	-0.255166	0.255166
10	*-0.271793*	0.130189	-0.255166	0.255166
11	-0.015166	0.130189	-0.255166	0.255166
12	-0.108887	0.130189	-0.255166	0.255166
13	-0.147666	0.130189	-0.255166	0.255166
14	-0.031987	0.130189	-0.255166	0.255166
15	-0.045914	0.130189	-0.255166	0.255166
16	0.059521	0.130189	-0.255166	0.255166
17	0.010426	0.130189	-0.255166	0.255166
18	-0.002216	0.130189	-0.255166	0.255166
19	0.032174	0.130189	-0.255166	0.255166

Value outside autocorrelations limits at the 95% confidence level in italic.

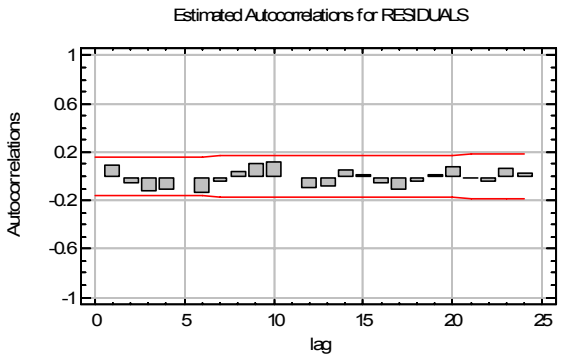
† Autocorrelations limits at the 99% confidence level: ±0.335345.

Fig. H.1 Autocorrelations correlograms for hypothesis one

Panel A: Model using monthly data



Panel B: Model using weekly data



Panel C: Model using daily data

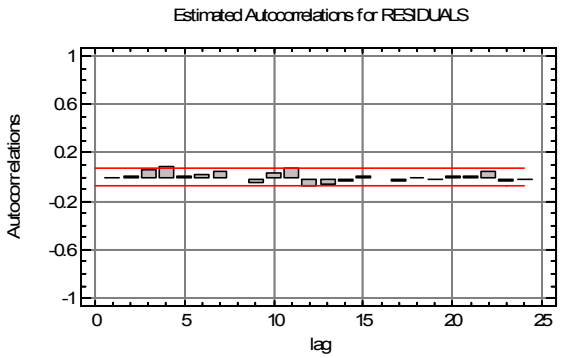


Fig. H.1 Autocorrelations correlograms for hypothesis one (continued)

Panel D: Model using quarterly data

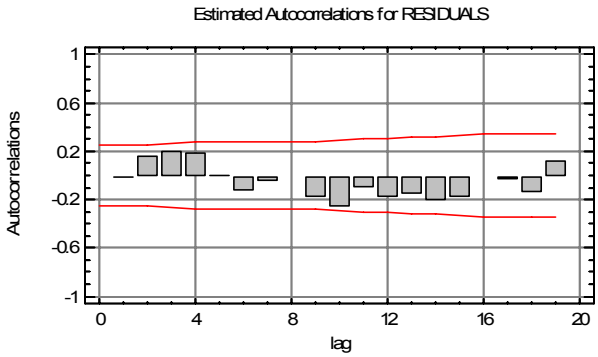
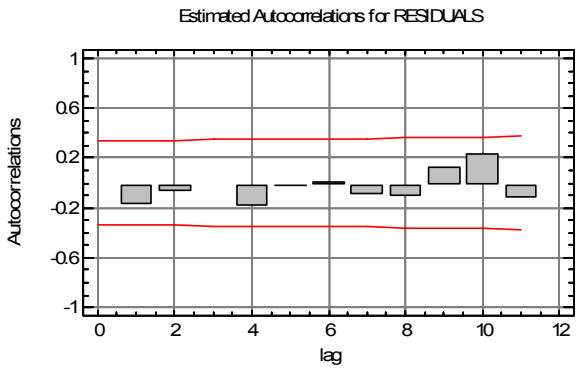
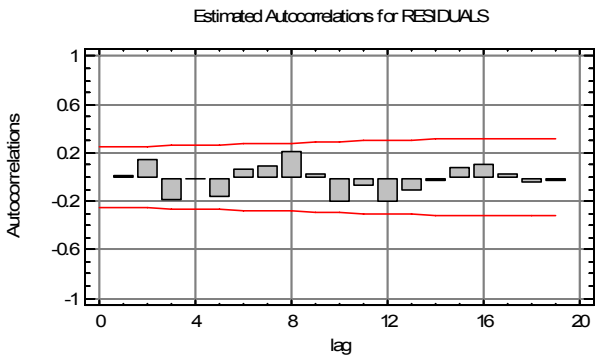


Fig. H.2 Autocorrelations correlogram for hypothesis two

Panel A: Model using monthly data



Panel B: Model using quarterly data



Appendix I Durbin-Watson Distribution and Critical Values

Fig. I.1 The five regions of the Durbin-Watson *d*-statistic

Reject H_0	Inconclusive	Accept H_0	Inconclusive	Reject H_0
Significant Positive Autocorrelation	Uncertainty Zone	Not Significant Autocorrelation	Uncertainty Zone	Significant Negative Autocorrelation

0 **DW_L** **DW_U** **2** **$4\text{-}DW_U$** **$4\text{-}DW_L$** **4**

DW_L for Durbin-Watson lower critical value.

DW_U for Durbin-Watson upper critical value.

Table I.1 Critical Values for the Durbin-Watson test

n	k[a]	DW_L	DW_U	4 - DW_U	4 - DW_L
35	**9**	0.97099	2.05436	1.94564	3.02901
35	**10**	0.90788	2.14395	1.85605	3.09212
59	**5**	1.43848	1.72663	2.27337	2.56152
59	**6**	1.40191	1.76720	2.2328	2.59809
155	**10**	1.61643	1.86142	2.13858	2.38357
740	**10**	1.856†	1.904†	2.096†	2.144†
781	**12**	1.855†	1.911†	2.089†	2.145†

Table entries for 5% significance level, one-sided test of the Durbin-Watson statistic.

[a] k includes intercept (k-1 for number of explanatory variables).

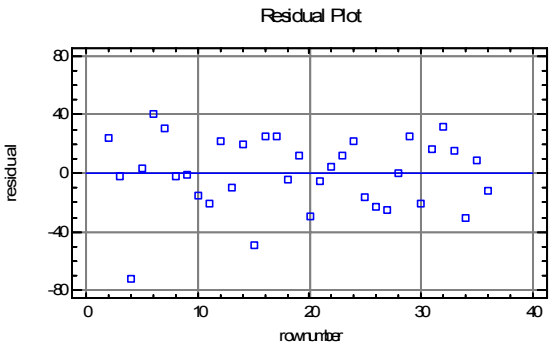
† Approximate value (own estimation).

Sources: Savin & White (1977); Website of Stanford University (Online) (2007).

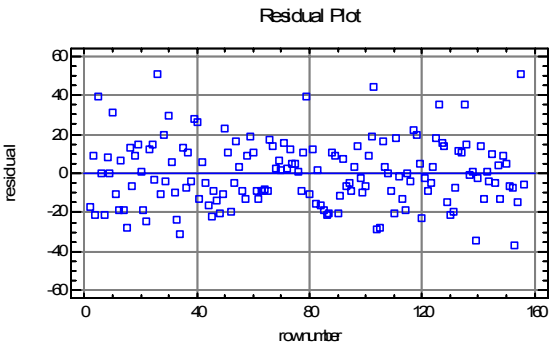
Appendix J Plots for Normal Distribution of Residuals

Fig. J.1 Plot of residuals for hypothesis one

Panel A: Model using monthly data



Panel B: Model using weekly data



Panel C: Model using daily data

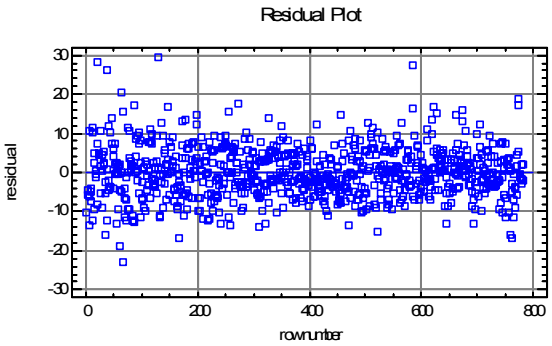


Fig. J.1 Plot of residuals for hypothesis one (continued)

Panel D: Model using quarterly data

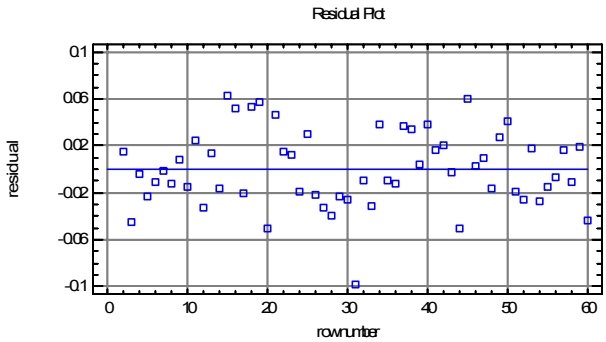
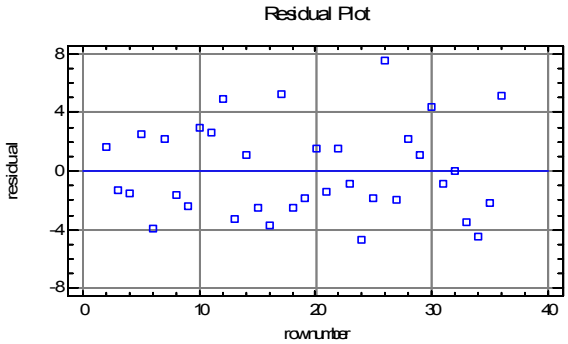


Fig. J.2 Plot of residuals for hypothesis two

Panel A: Model using monthly data



Panel B: Model using quarterly data

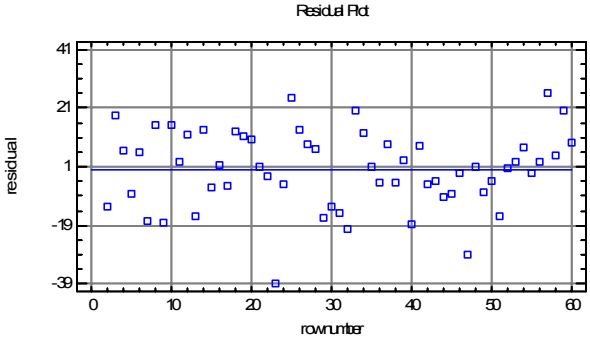
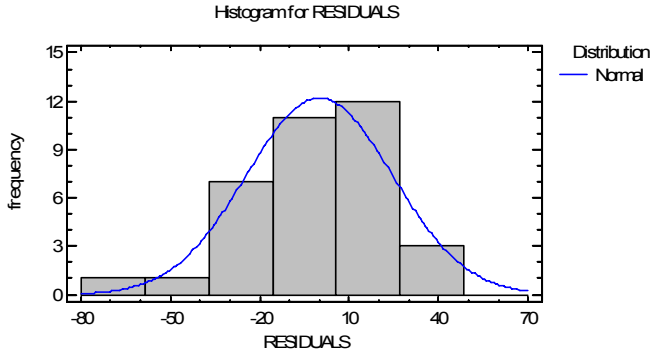
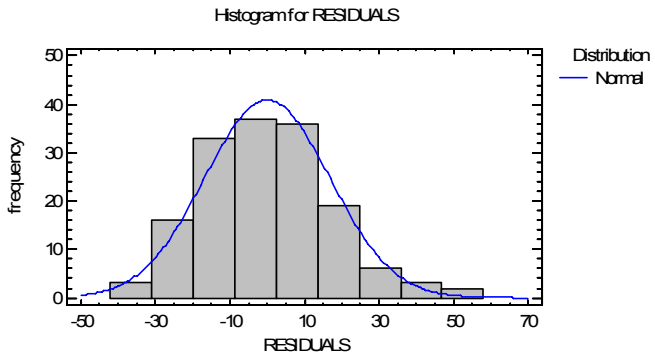


Fig. J.3 Histograms of residuals with normal distribution curve superimposed for hypothesis one

Panel A: Model using monthly data



Panel B: Model using weekly data



Panel C: Model using daily data

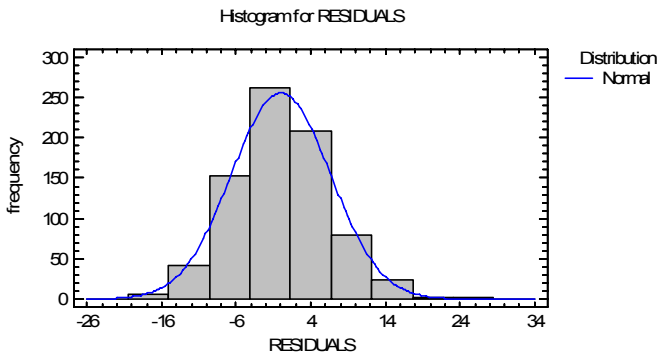


Fig. J.3 Histograms of residuals with normal distribution curve superimposed for hypothesis one

Panel D: Model using quarterly data

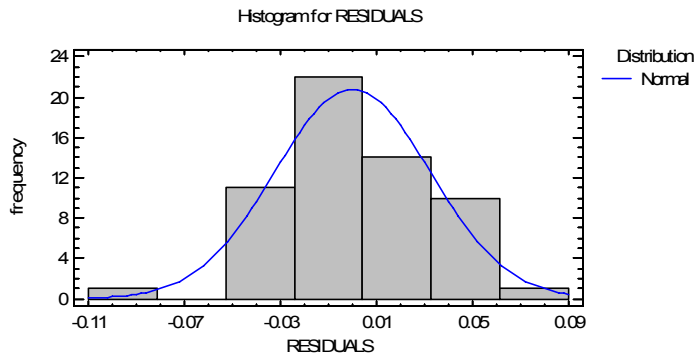
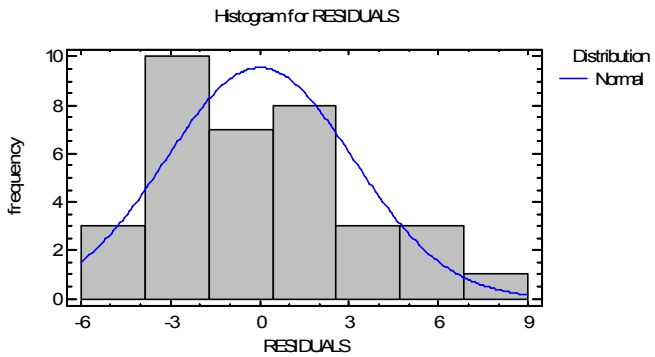


Fig. J.4 Histogram of residuals with normal distribution curve superimposed for hypothesis two

Panel A: Model using monthly data



Panel B: Model using quarterly data

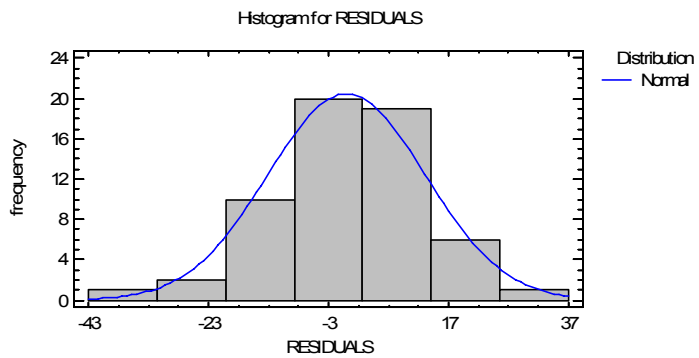
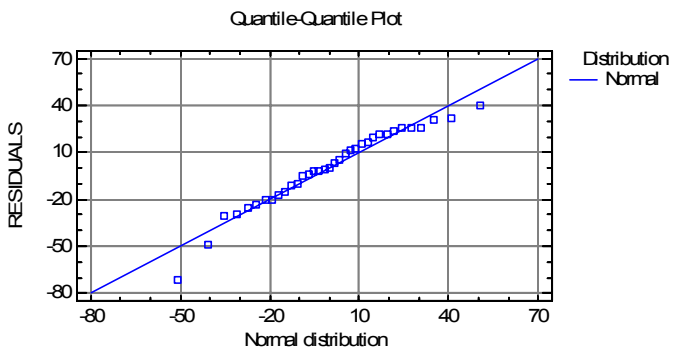
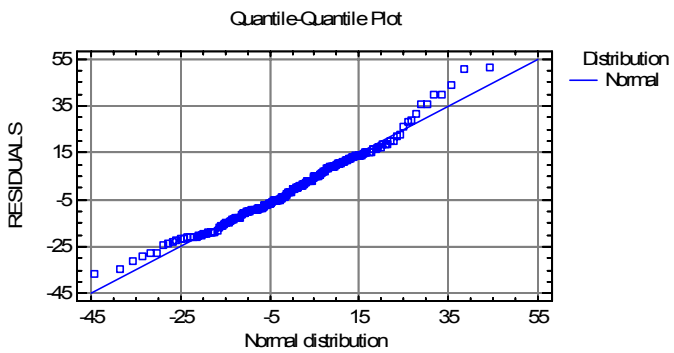


Fig. J.5 Residuals' normal probability plots for hypothesis one

Panel A: Model using monthly data



Panel B: Model using weekly data



Panel C: Model using daily data

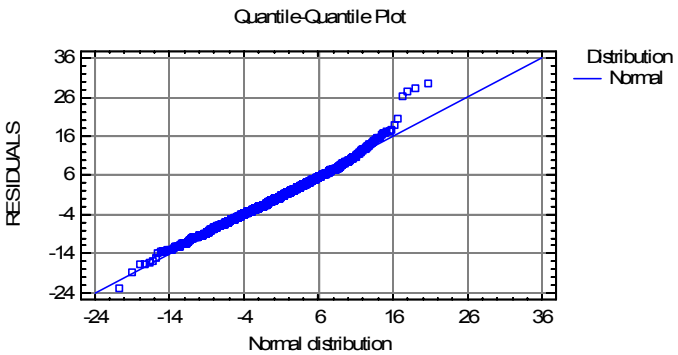


Fig. J.5 Residuals' normal probability plots for hypothesis one (continued)

Panel D: Model using quarterly data

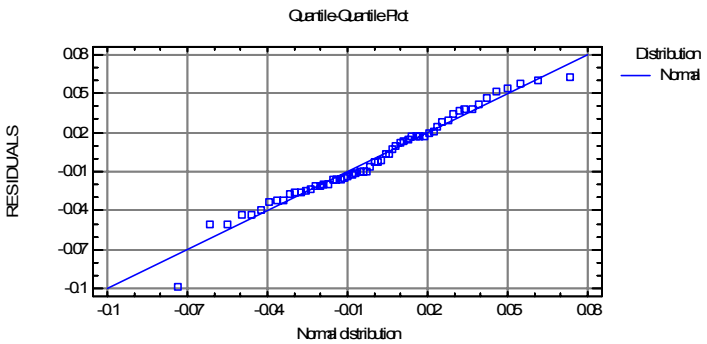
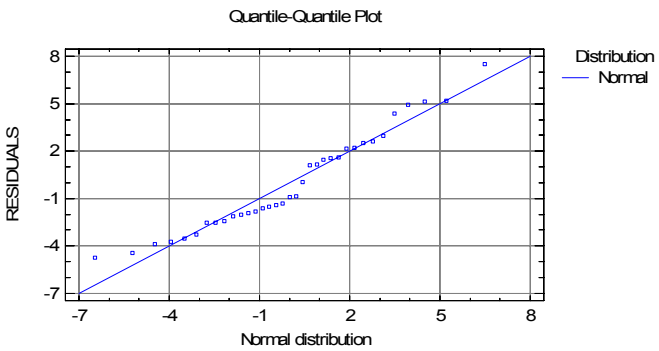
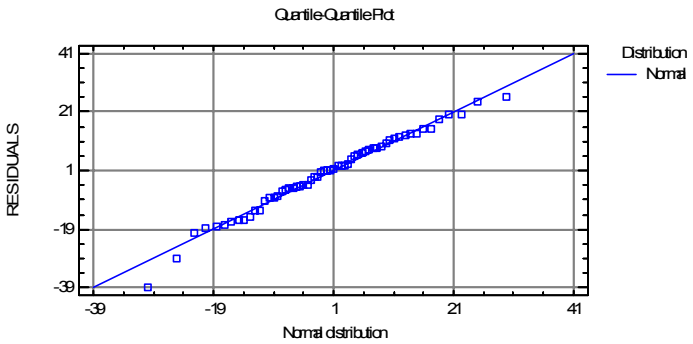


Fig. J.6 Residuals' normal probability plot for hypothesis two

Panel A: Model using monthly data



Panel B: Model using quarterly data



Appendix K Outliers and Influential Points

Table K.1 Unusual residuals for hypothesis one

Panel A: Model using monthly data

Row	Residual	Studentised Residual	Studentised Values Without Deletion	Studentised Values With Deletion	Modified MAD Z-Score
4	-71.8512	*-3.49*	-2.92824	-3.4513	-2.504
15	-48.7819	-2.16	-1.98807	-2.14889	-1.70519

Excessive studentised residual in italic.

Panel B: Model using weekly data

Row	Residual	Studentised Residual	Studentised Values Without Deletion	Studentised Values With Deletion	Modified MAD Z-Score
5	39.5832	2.46	2.35398	2.40552	2.39801
26	51.0338	*3.08*	3.03493	3.14071	3.07918
79	39.6534	2.43	2.35815	2.40994	2.40218
103	43.9561	2.67	2.61403	2.68304	2.65814
126	35.3771	2.14	2.10384	2.14182	2.1478
135	35.3992	2.15	2.10516	2.1432	2.14911
139	-34.2884	-2.05	-2.0391	-2.07404	-1.99646
153	-36.8139	-2.32	-2.18929	-2.23157	-2.1467
155	50.6165	*3.27*	3.01012	3.1134	3.05436

Excessive studentised residuals in italic.

Table K.1 Unusual residuals for hypothesis one (continued)

Panel C: Model using daily data

Row	Residual	Studentised Residual	Studentised Values Without Deletion	Studentised Values With Deletion	Modified MAD Z-Score
21	28.2386	*4.34*	4.24816	4.30099	*4.55937*
37	26.2322	*4.01*	3.94632	3.98892	*4.23865*
65	20.6055	*3.13*	3.09985	3.12115	3.33921
66	-23.0304	*-3.54*	-3.46465	-3.49389	*-3.63608*
130	29.4753	*4.51*	4.43421	4.49413	*4.75706*
586	27.5797	*4.21*	4.14904	4.19834	*4.45405*

Excessive studentised residuals and modified MAD Z-scores in italic.

Panel D: Model using quarterly data

Row	Residual	Studentised Residual	Studentised Values Without Deletion	Studentised Values With Deletion	Modified MAD Z-Score
31	-0.09861	*-3.26*	-3.04919	-3.36114	-3.19579

Excessive studentised residual in italic.

Table K.2 Unusual residuals for hypothesis two

Panel A: Model using monthly data

Row	Residual	Studentised Residual	Studentised Values Without Deletion	Studentised Values With Deletion	Modified MAD Z-Score
26	7.52585	2.48	2.40341	2.68336	2.37721
36	5.13396	2.29	1.63955	1.73486	1.70375

There are no excessive studentised residuals or modified MAD Z-scores.

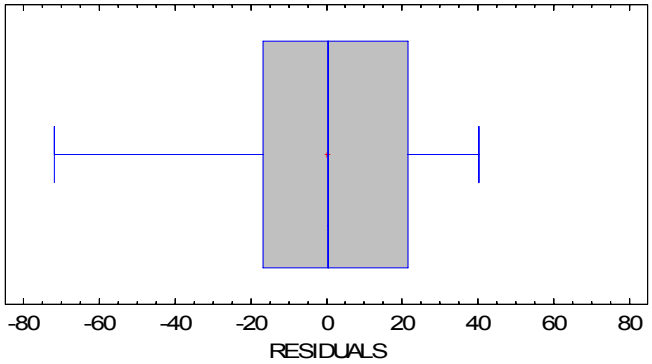
Panel B: Model using quarterly data

Row	Residual	Studentized Residual	Studentised Values Without Deletion	Studentised Values With Deletion	Modified MAD Z-Score
23	-38.9292	*-3.35*	-2.96044	-3.24522	-3.02038
47	-28.8337	-2.24	-2.19271	-2.31078	-2.2569
57	26.3563	2.09	2.00431	2.09642	1.91689

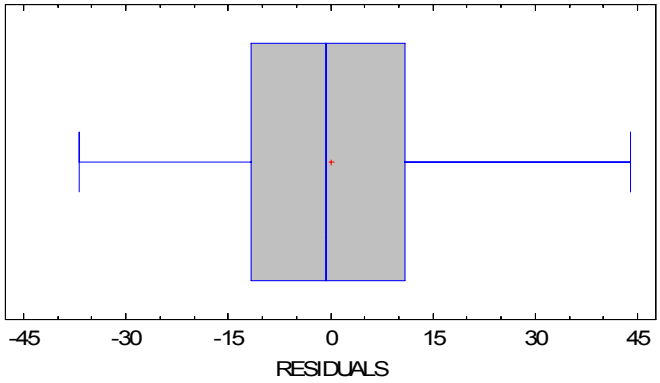
Excessive studentised residual in italic.

Fig. K.1 Box-and-Whisker plot of residuals for hypothesis one

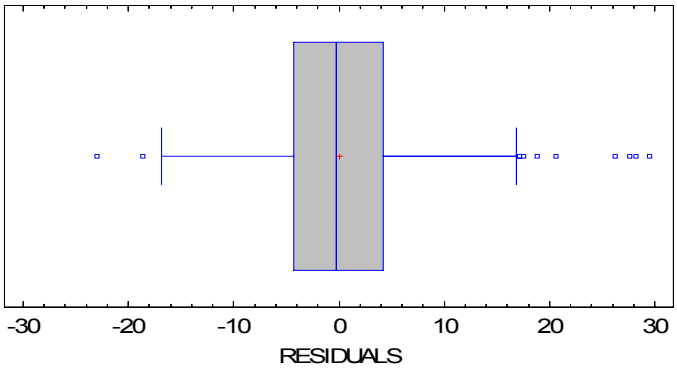
Panel A: Model using monthly data



Panel B: Model using weekly data



Panel C: Model using daily data



Box-and-Whisker plot of residuals for hypothesis one (Continued)

Panel D: Model using quarterly data

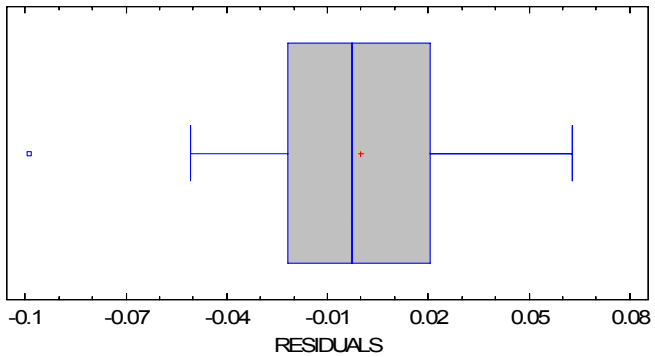
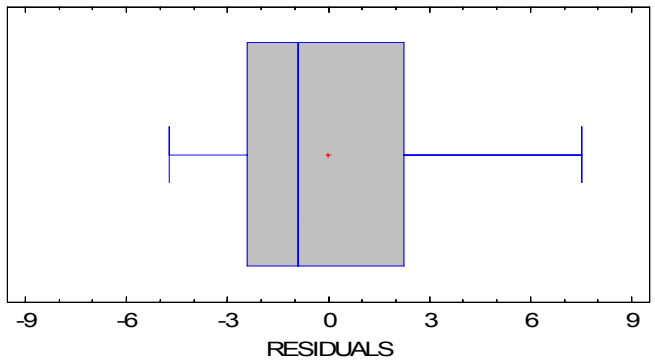


Fig. K.2 Box-and-Whisker plot of residuals for hypothesis two

Panel A: Model using monthly data



Panel B: Model using quarterly data

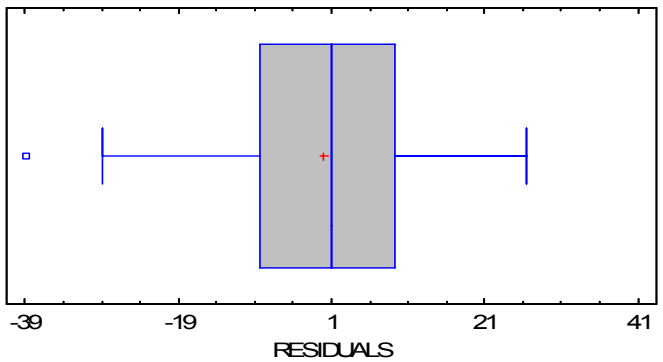
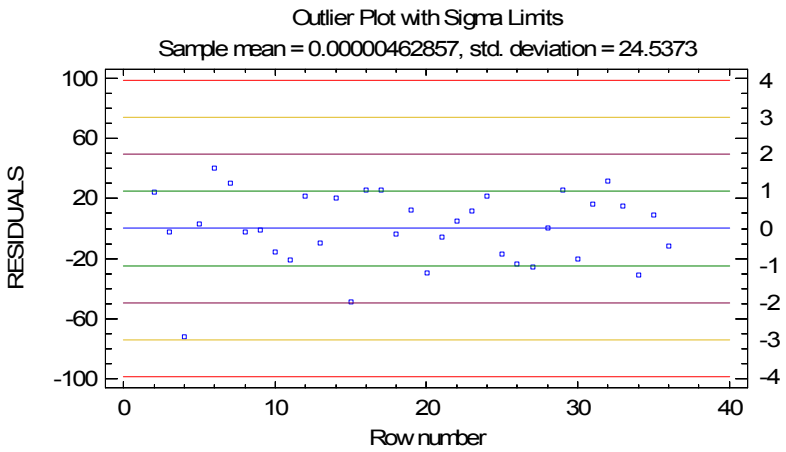


Fig. K.3 Plot of outliers for hypothesis one

Panel A: Model using monthly data



Panel B: Model using weekly data

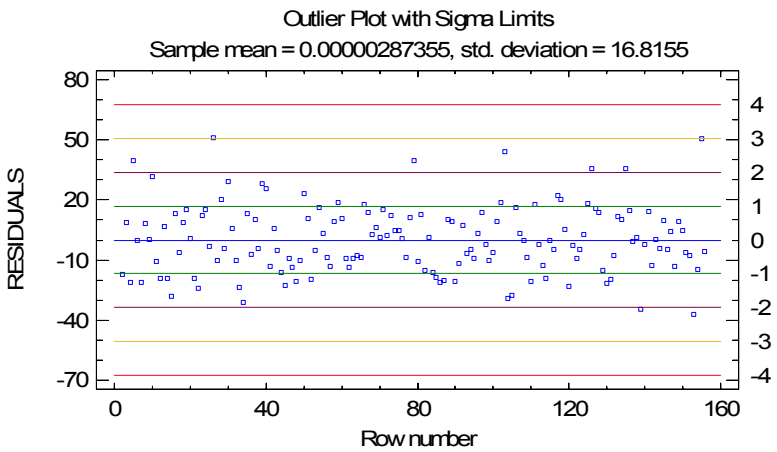
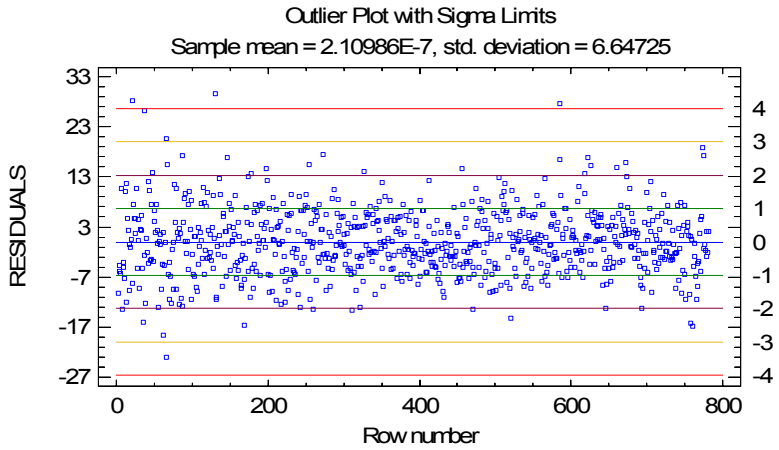


Fig. K.3 Plot of outliers for hypothesis one (continued)

Panel C: Model using daily data



Panel D: Model using quarterly data

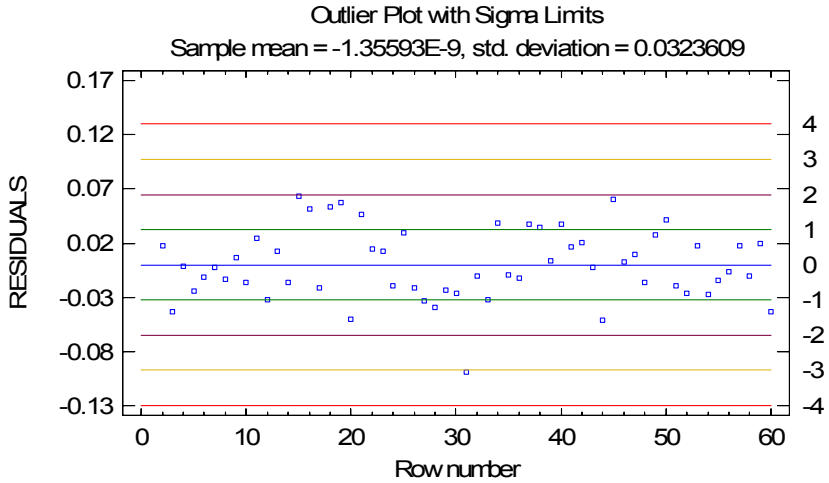
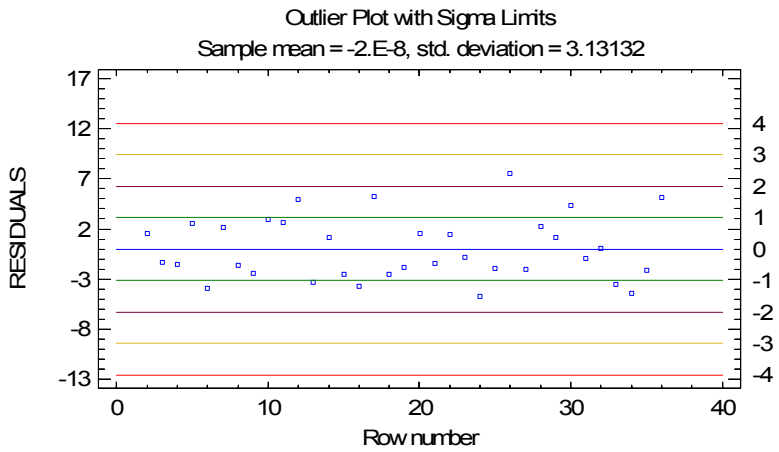


Fig. K.4 Plot of outliers for hypothesis two

Panel A: Model using monthly data



Panel B: Model using quarterly data

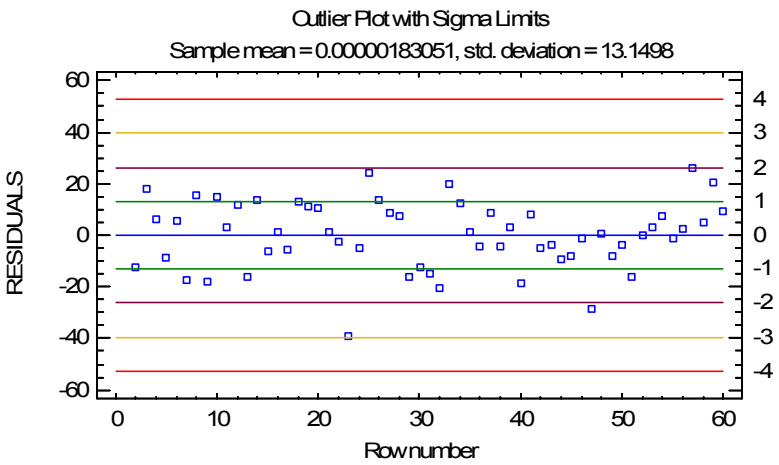


Table K.3 Influential points for hypothesis one

Panel A: Model using monthly data

Row	Leverage	Mahalanobis Distance	DFITS	COOK's D
2	0.478847	29.3505	*1.14009*	*0.1421550*
4	0.230409	8.90934	*-1.91005*	*0.2834294*
11	0.517912	34.4816	*-1.10874*	*0.1358353*
15	0.259749	10.6089	*-1.27837*	*0.1591881*
20	0.421596	23.0829	*-1.1974*	*0.1535954*
32	0.429162	23.8391	*1.32439*	*0.1853844*

Average leverage of single data point = 0.257143. Excessive Leverage, DFITS, and Cook's D values in italic.

Panel B: Model using weekly data

Row	Leverage	Mahalanobis Distance	DFITS	COOK's D
5	0.109032	17.7298	*0.86116*	*0.0716604*
26	0.034742	4.51349	*0.58512*	*0.0323388*
79	0.081673	12.6139	*0.72401*	*0.0507079*
89	*0.351172*	81.8164	0.47447	0.0226034
103	0.057117	8.27487	*0.65633*	*0.0413354*
104	0.084174	13.0688	*-0.53353*	*0.0280598*
126	0.064021	9.4718	*0.55860*	*0.0304556*
135	0.077157	11.7986	*0.62250*	*0.0378041*
153	0.134014	22.6837	*-0.91145*	*0.0806455*
155	0.146825	25.3366	*1.35482*	*0.1720823*

Average leverage of single data point = 0.0645161. Excessive Leverage, DFITS, and Cook's D values in italic.

Table K.3 Influential points for hypothesis one (continued)

Panel C: Model using daily data

Row	Leverage	Mahalanobis Distance	DFITS	COOK's D
6	0.030427	23.4481	*0.28761*	*0.0068790*
7	0.026583	20.2752	*-0.33444*	*0.0092836*
11	0.050007	40.0081	*0.35620*	*0.0105543*
21	0.031430	24.2803	*0.78096*	*0.0496760*
22	0.054978	44.3212	*0.27497*	*0.0062986*
35	0.018717	13.8602	*-0.33411*	*0.0092446*
36	0.055278	44.5831	-0.09700	0.0007850
37	0.025604	19.4713	*0.64974*	*0.0345048*
38	0.027045	20.6551	*-0.30808*	*0.0078849*
42	0.029542	22.7151	*0.31873*	*0.0084404*
43	0.036637	28.6275	*0.30267*	*0.0076204*
47	0.017167	12.6087	*0.27599*	*0.0063199*
62	0.012332	8.72782	*-0.31476*	*0.0081823*
65	0.024179	18.3038	*0.49327*	*0.0200466*
66	0.040116	31.5584	*-0.72318*	*0.0429398*
67	0.012496	8.85912	*0.26313*	*0.0057367*
80	0.049909	39.9232	0.06519	0.0003546
85	0.022290	16.7617	*-0.25582*	*0.0054407*
86	0.022381	16.8355	*-0.29274*	*0.0071161*
87	0.009944	6.82568	*0.25909*	*0.0055530*
106	0.044460	35.2476	*-0.32462*	*0.0087675*
130	0.021191	15.8667	*0.66297*	*0.0357309*
131	*0.126369*	111.682	*-0.69386*	*0.0399993*
132	0.052073	41.7947	*-0.39653*	*0.0130718*
146	0.010851	7.54744	*0.26542*	*0.0058296*
168	0.012287	8.69229	*-0.27878*	*0.0064330*
176	0.047155	37.5531	*-0.37465*	*0.0116695*
177	0.042470	33.5531	*0.44089*	*0.0161283*
217	0.021992	16.5186	*-0.28031*	*0.0065269*
234	0.046511	37.0009	-0.20338	0.0034476
235	0.076349	63.3938	-0.05276	0.0002323
256	0.042095	33.235	*-0.36887*	*0.0113081*
257	*0.080274*	66.9929	0.16676	0.0023194
272	0.011685	8.21165	*0.28717*	*0.0068193*
327	0.018359	13.5705	*0.28821*	*0.0068913*

Average leverage of single data point = 0.0153649. *(continues on the next page)*

Excessive Leverage, DFITS, and Cook's D values in italic.

Table K.3 Influential points for hypothesis one (continued)

Panel C: Model using daily data (continued)

Row	Leverage	Mahalanobis Distance	DFITS	COOK's D
335	0.05006	40.0543	*0.25033*	*0.005221*
393	0.04780	38.1076	-0.07673	0.000491
413	0.02409	18.2347	*0.29243*	*0.007103*
436	0.04637	36.8804	-0.06182	0.000318
442	0.07672	63.736	-0.03144	0.000082
443	0.07589	62.9748	-0.12603	0.001325
444	*0.07727*	64.2353	-0.13218	0.001457
445	0.07470	61.8941	*0.30710*	*0.007857*
456	0.02584	19.6693	*0.36268*	*0.010905*
494	0.04710	37.5109	0.02547	0.000054
495	0.07260	59.9862	0.06853	0.000391
516	*0.07908*	65.8974	*-0.37068*	*0.011441*
517	0.05076	40.6661	-0.10999	0.001009
518	0.07615	63.2157	0.20277	0.003428
521	0.02019	15.0597	*-0.33030*	*0.009041*
522	0.04716	37.5593	*0.34871*	*0.010114*
585	0.05139	41.2101	*0.59025*	*0.028830*
586	0.02283	17.2056	*0.64398*	*0.033823*
587	0.03972	31.2273	*0.29031*	*0.007013*
623	0.01013	6.97882	*0.25717*	*0.005472*
627	0.01617	11.8073	*0.29641*	*0.007280*
654	0.04780	38.1122	0.11357	0.001075
655	0.07164	59.1185	0.21141	0.003726
673	0.02308	17.4135	*0.36830*	*0.011234*
674	0.03633	28.3721	*0.38758*	*0.012470*
694	0.02489	18.8884	*-0.31824*	*0.008407*
703	0.07468	61.8811	0.15856	0.002097
758	0.03217	24.9009	*-0.44833*	*0.016641*
759	0.05442	43.8368	0.03935	0.000129
760	*0.07908*	65.896	0.02335	0.000045
761	0.03281	25.4355	*-0.47291*	*0.018502*
774	0.01660	12.1518	*0.37057*	*0.011338*
775	0.02317	17.4821	*0.40128*	*0.013319*
777	*0.08290*	69.4202	-0.02678	0.000059
778	0.05791	46.8929	-0.06689	0.000373
779	*0.08346*	69.9384	0.09498	0.000752

Average leverage = 0.0153649. Excessive Leverage, DFITS, and Cook's D values in italic.

Table K.3 Influential points for hypothesis one (continued)

Panel D: Model using quarterly data

Row	Leverage	Mahalanobis Distance	DFITS	COOK's D
19	0.141933	8.44565	*0.76054*	*0.11057273*
20	0.137918	8.13625	*-0.66221*	*0.08496698*
31	0.045455	1.73158	*-0.71167*	*0.08595706*
60	0.407693	38.251	*-1.43693*	*0.39820474*

Average leverage of single data point = 0.0847458. Excessive Leverage, DFITS, and Cook's D values in italic.

Table K.4 Influencial points for hypothesis two

Panel A: Model using monthly data

Row	Leverage	Mahalanobis Distance	DFITS	COOK's D
10	0.49152	30.928	*1.12271*	*0.12453303*
26	0.16657	5.6252	*1.10826*	0.10186089
34	0.44419	25.403	*-1.50888*	*0.21199466*
36	0.55808	40.703	*2.5698*	*0.56483247*

Average leverage of single data point = 0.285714. Excessive Leverage, DFITS, and Cook's D values in italic.

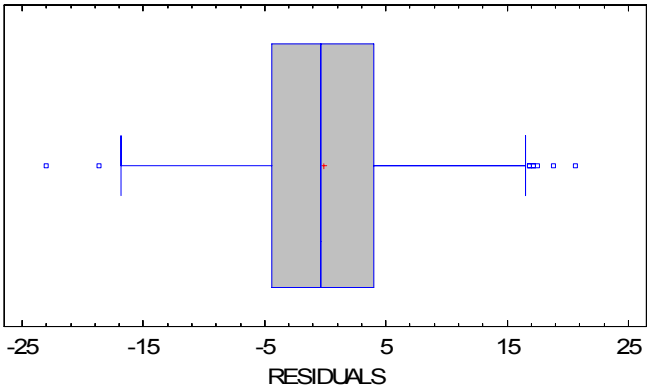
Panel B: Model using quarterly data

Row	Leverage	Mahalanobis Distance	DFITS	COOK's D
23	0.150704	9.13169	*-1.41316*	*0.2788794*
31	0.268098	19.8966	*-0.75469*	*0.0939430*
32	0.156596	9.60052	*-0.70661*	*0.0806471*
33	0.225137	15.5786	*0.90226*	*0.1312186*
57	0.10271	5.54188	*0.70562*	*0.0780503*

Average leverage of single data point = 0.101695. Excessive Leverage, DFITS, and Cook's D values in italic.

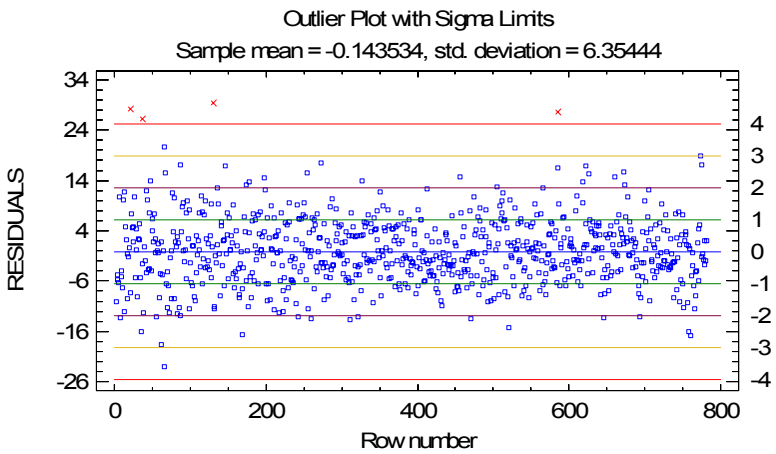
Appendix L Sensitivity Analyses

Fig. L.1 Box-and-Whisker plot of residuals with major outliers removed



Model using daily data with 4 major outliers removed

Fig. L.2 Outlier plot with major outliers' elimination



Model using daily data with 4 major outliers removed (red X's)

Table L.1 Additional regression model estimation and tests results

$$MA_t = \alpha + \sum_{j=1}^{3} \beta_j Per_t^j + \sum_{i=1}^{4} \delta_i Weekday_{i,t} + \lambda\, SP500_t + \zeta\, FED_t + \varphi\, Hol_t + \\ + \varpi\, HS\_Ext_t + \phi\, E\_BoM_t + \theta\, Event_t + \psi\, Event\_ED_t + \xi\, MA_{t-1} + \varepsilon_t \tag{21}$$

Backward elimination regression, with all variables left in the model significant at the 0.05 level:

Parameter	*Estimate*	*P-Value*	*T Statistic*	*Standard Error*
Intercept	22.1014	*0.0002*	3.73514	5.91715
Per	-0.04491	*0.0000*	-8.52012	0.005271
Per_2	0.00004	*0.0000*	7.21886	0.000006
Tue	-3.04442	*0.0002*	-3.68739	0.825631
Wed	-4.87279	*0.0000*	-5.97421	0.815637
Thu	-5.24635	*0.0000*	-6.52683	0.803812
Fri	-9.3084	*0.0000*	-11.5858	0.803433
E_BoM	12.6057	*0.0000*	15.0404	0.83812
SP500	0.01009	*0.0104*	2.56297	0.003938
MA_lag	0.10468	*0.0005*	3.45684	0.030282
ANOVA *F* value	86.57	*0.0000*		
R^2 (adjusted for d. f.)	51.032%			
N used (read)	740 (741)			
Durbin-Watson D	2.03524	*0.3159*		
Chi-Squared (50 d. f.)	58.5726	*0.189843*		
Shapiro-Wilk W	0.98280	*0.120424*		
Skewness Z-score	3.26643	*0.001089*		
Kurtosis Z-score	4.70102	*0.000002*		
Kolmogorov-Smirnov	0.03136	*0.469434*		
Modified K-S D	0.85703	*≥ 0.10*		
Cramer-Von Mises W^2	0.16416	*≥ 0.10*		
Watson U^2	0.12940	*≥ 0.10*		
Anderson-Darling A^2	1.19931	*≥ 0.10*		
Kuiper V	0.05535	*≥ 0.10*		
Box-Pierce Test	24.2939	*0.444899*		

Table L.2 Estimated autocorrelations for additional regression' residuals

Lag	*Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limit*	*Upper 95.0% Prob. Limit*
1	-0.019282	0.036760	-0.072049	0.072049
2	0.057553	0.036774	-0.072076	0.072076
3	0.066627	0.036895	-0.072314	0.072314
4	0.061606	0.037058	-0.072632	0.072632
5	0.043876	0.037196	-0.072903	0.072903
6	-0.009975	0.037266	-0.073040	0.073040
7	0.031927	0.037269	-0.073047	0.073047
8	-0.003524	0.037306	-0.07312	0.07312
9	-0.031673	0.037307	-0.073120	0.073120
10	0.013436	0.037343	-0.073192	0.073192
11	0.017129	0.03735	-0.073204	0.073204
12	-0.043115	0.037360	-0.073225	0.073225
13	-0.042528	0.037427	-0.073357	0.073357
14	-0.04463	0.037493	-0.073485	0.073485
15	0.031350	0.037564	-0.073625	0.073625
16	-0.045995	0.037600	-0.073695	0.073695
17	0.028128	0.037676	-0.073843	0.073843
18	-0.027576	0.037704	-0.073899	0.073899
19	-0.002347	0.037731	-0.073952	0.073952
20	-0.032499	0.037731	-0.073953	0.073953
21	0.022204	0.037769	-0.074027	0.074027
22	0.005533	0.037787	-0.074062	0.074062
23	-0.066840	0.037788	-0.074064	0.074064
24	-0.003839	0.037947	-0.074376	0.074376

Table L.3 Estimated partial autocorrelations for additional regression' residuals

Lag	*Partial Autocorrelation*	*Standard Error*	*Lower 95.0% Prob. Limit*	*Upper 95.0% Prob. Limit*
1	-0.019282	0.0367607	-0.0720498	0.0720498
2	0.057202	0.0367607	-0.0720498	0.0720498
3	0.069027	0.0367607	-0.0720498	0.0720498
4	0.061563	0.0367607	-0.0720498	0.0720498
5	0.039461	0.0367607	-0.0720498	0.0720498
6	-0.019576	0.0367607	-0.0720498	0.0720498
7	0.018427	0.0367607	-0.0720498	0.0720498
8	-0.010177	0.0367607	-0.0720498	0.0720498
9	-0.038463	0.0367607	-0.0720498	0.0720498
10	0.009095	0.0367607	-0.0720498	0.0720498
11	0.020773	0.0367607	-0.0720498	0.0720498
12	-0.040660	0.0367607	-0.0720498	0.0720498
13	-0.043352	0.0367607	-0.0720498	0.0720498
14	-0.045118	0.0367607	-0.0720498	0.0720498
15	0.035872	0.0367607	-0.0720498	0.0720498
16	-0.028456	0.0367607	-0.0720498	0.0720498
17	0.037468	0.0367607	-0.0720498	0.0720498
18	-0.020681	0.0367607	-0.0720498	0.0720498
19	-0.000313	0.0367607	-0.0720498	0.0720498
20	-0.031893	0.0367607	-0.0720498	0.0720498
21	0.022987	0.0367607	-0.0720498	0.0720498
22	0.005176	0.0367607	-0.0720498	0.0720498
23	-0.060646	0.0367607	-0.0720498	0.0720498
24	-0.006545	0.0367607	-0.0720498	0.0720498

Fig. L.3 Autocorrelations correlogram for additional regression model