

João Luís Ferro do Rosário Fragoso

**The impact of financial restatements on financial
markets: a systematic review of the literature**



2018

João Luís Ferro do Rosário Fragoso

The impact of financial restatements on financial markets: a systematic review of the literature

Dissertação

Mestrado em Contabilidade

Trabalho efetuado sob a orientação de:

Professor Doutor Rúben Miguel Torcato Peixinho

Professor Doutor Luís Miguel Serra Coelho



2018

The impact of financial restatements on financial markets: a systematic review of the literature

Declaração de Autoria do Trabalho

Declaro ser o autor deste trabalho, que é original e inédito. Autores e trabalhos consultados estão devidamente citados no texto e constam da listagem de referências incluída.

João Luís Ferro do Rosário Fragoso

© Copyright: João Luís Ferro do Rosário Fragoso

A Universidade do Algarve tem o direito, perpétuo e sem limites geográficos, de arquivar e publicitar este trabalho através de exemplares impressos reproduzidos em papel ou de forma digital, ou por qualquer outro meio conhecido ou que venha a ser inventado, de o divulgar através de repositórios científicos e de admitir a sua cópia e distribuição com objetivos educacionais ou de investigação, não comerciais, desde que seja dado crédito ao autor e editor.

*õSometimes it~~ø~~ not enough to know what things mean; sometimes you have to know
what things don~~ø~~ mean.ö*

Bob Dylan

*õYou can't always get what you want, but if you try sometimes, you might find, you get
what you need.ö*

Keith Richards and Mick Jagger

ACKNOWLEDGEMENTS

This work would not be finished without the collaboration of some important people.

I wish to express my gratitude to the supervisors of this dissertation, Professors Rúben Peixinho and Luís Coelho, for their valuable suggestions, sharing of knowledge, for their encouragement and support, and the opportunities to enhance my skills.

I would like to thank my colleagues Marisa Cesário, Dora Agapito and Emília Madeira for their interest in accompanying the course of this work, and for some words that, sometimes without knowing, gave me a boost in my motivation.

A special thanks to Professor Efigénio Rebelo who have always encouraged me to finish the dissertation, for the precious advice and the incitation to always go further.

A special word to my dear friends Susan and Malcolm Gascoigne. For the motivation and support, the opening of my mind to different perspectives and realities through some enriched discussions, and above all, for all the patience.

I also acknowledge the emotional support of my friends Paula Dias, Francisco Brito and Thomas Ishi, who helped me see the light at the end of the tunnel.

To my parents, brother and sister, in my own way, scarce in words, a profound sense of gratitude for all the support.

RESUMO

As demonstrações financeiras corrigidas representam a alteração de demonstrações financeiras (*Financial Restatements*) publicadas anteriormente com erros. Este evento está diretamente relacionado com a qualidade da contabilidade e do reporte financeiro e é particularmente relevante para gestores, acionistas, auditores, analistas financeiros e reguladores. A percentagem de empresas cotadas nos Estados Unidos da América (E.U.A.) que submetem demonstrações financeiras corrigidas varia entre os 6% e os 13% para os anos 2005 a 2016. A literatura académica sublinha que o valor de mercado destas empresas sofre uma diminuição significativa no período anterior à publicação e no período em torno do dia da publicação das demonstrações financeiras corrigidas.

Esta dissertação efetua uma revisão sistemática da literatura relacionada com o impacto na publicação das demonstrações financeiras corrigidas no valor de mercado dessas empresas. Em particular, os objetivos deste trabalho são:

1. Desenvolver um estudo delimitativo que potencie o entendimento das questões principais relacionadas com a correção das demonstrações financeiras e a dinâmica dos mercados financeiros. É esperado que este entendimento potencie a identificação das palavras-chave necessárias para a revisão sistemática da literatura;
2. Apresentar uma estratégia de investigação que possibilite a identificação de artigos académicos relacionados com o impacto das demonstrações financeiras corrigidas nos mercados financeiros;
3. Identificar e discutir as questões mais importantes resultantes da ligação destas duas áreas assim como os desenvolvimentos mais recentes;
4. Identificar as oportunidades de investigação que possibilitem a realização de trabalho empírico no futuro.

A realização desta dissertação baseia-se na metodologia da ‘Revisão Sistemática de Literatura’ seguindo o protocolo desenvolvido por Tranfield, Denyer, and Smart (2003) e subsequente atualização por Denyer and Tranfield (2009). A metodologia utilizada rege-se por um protocolo rigoroso, que se pretende transparente e replicável por outros autores, possibilitando a replicação / atualização do presente trabalho. Tal como

sugerido pelos autores, e dando cumprimento à primeira fase da metodologia, foi desenvolvido um estudo delimitativo da área a sistematizar, por forma a conseguir cumprir as restantes etapas da metodologia.

O estudo delimitativo revela que a maioria dos artigos académicos sobre esta temática são baseados nos E.U.A. Por outro lado, o mercado de capitais americano é o maior e o mais desenvolvido no mundo e as empresas listadas nos principais índices americanos partilham o mesmo regime legal. Por estas razões, o presente trabalho foca a sua análise nas empresas cotadas nos E.U.A. no sentido de assegurar a robustez dos resultados e assegurar que as conclusões não estão enviesadas por diferentes regimes legais na apresentação das demonstrações financeiras corrigidas.

O estudo delimitativo começa com um resumo da história da contabilidade nos E.U.A por forma a perceber a evolução das práticas contabilísticas e os passos dados por forma a aumentar a transparência do reporte financeiro e dos mercados financeiros. Neste contexto, é apresentado o papel da *Securities Exchange Commission* (SEC) e do *Financial Accounting Standards Board* (FASB) na implementação da estrutura conceptual em 1973, que veio sistematizar os princípios de contabilidade geralmente aceites (General Accepted Accounting Principles ó GAAP) nos E.U.A. Numa fase mais recente, no início do século XXI, as demonstrações financeiras publicadas pela Enron e a consequente descoberta de várias irregularidades nas mesmas, obrigou à republicação de novas demonstrações financeiras. A subsequente falência da Enron levou o congresso dos E.U.A. a aprovar a lei que ficou conhecida como *Sarbanes-Oxley Act* (SOX), a qual obrigou as empresas a rever os seus procedimentos e controlos internos por forma a melhorar o sistema de reporte financeiro. Outra das consequências desta lei traduziu-se na revisão obrigatória das demonstrações financeiras por um auditor externo por forma a garantir que as mesmas estariam livres de erros e omissões.

O estudo delimitativo discute ainda o conceito das demonstrações financeiras corrigidas e apresenta uma análise da evolução destes eventos durante o período compreendido entre 2001 e 2016. Esta parte da dissertação foca ainda a atenção nas causas e razões que estão na origem das correções às demonstrações financeiras e discute algumas das consequências não diretamente relacionadas com o funcionamento dos mercados financeiros. O estudo delimitativo apresenta ainda uma breve discussão sobre o

funcionamento dos mercados financeiros recorrendo à Teoria da Eficiência de Mercado e alguns aspetos relacionados com as Finanças Comportamentais.

A metodologia e o protocolo seguido para a elaboração da dissertação são apresentados após o estudo delimitativo. A definição das palavras-chave identificadas ao longo do estudo delimitativo origina cadeias de pesquisa que são aplicadas na base de dados eletrónica selecionada (B-ON). Após a aplicação dos critérios de exclusão e inclusão, obtém-se uma amostra final de 19 estudos. Os resultados destes estudos são apresentados e discutidos sistematicamente por forma a identificar as principais questões de investigação exploradas nesta área assim como algumas oportunidades de investigação empírica futura.

A revisão sistemática da literatura sugere que o impacto de curto-prazo no valor de mercado das empresas que apresentam correções às demonstrações financeiras é uma das principais questões exploradas na literatura. Vários artigos (e.g., Palmrose et al., 2004; Hribar and Jenkins, 2004; Akhigbe and Madura, 2008; Gondhalekar et al., 2012; Drake et al., 2015) reportam uma reação de mercado negativa e significativa nos dias em torno da divulgação das demonstrações financeiras corrigidas. Algumas análises mais detalhadas revelam que a magnitude desta reação negativa depende de alguns fatores explicativos como as causas e as razões para a correção, se o problema que originou a correção é fácil ou difícil de detetar, se existe ou não litígio no processo, se a empresa já tinha anteriormente revisto os resultados reportados, se existe comportamento fraudulento ou qual o responsável pelo início do processo (e.g., Cox and Weirich, 2002; Palmrose et al., 2004; Kravet and Shevlin, 2010; Salavei, 2010; Gondhalekar et al., 2012). Esta evidência sugere que é importante investigar se outros fatores não explorados apresentam poder explicativo acerca da reação de curto-prazo.

Apesar do consenso de que as demonstrações financeiras corrigidas têm um impacto negativo no valor de mercado das empresas no curto-prazo, os estudos dedicados à dinâmica de longo-prazo são escassos e não esclarecedores da relação entre a correção das demonstrações financeiras e o valor das empresas no longo-prazo (e.g., Gondhalekar et al., 2012). Desta forma, esta questão parece representar uma importante agenda de investigação no sentido de clarificar se os mercados assimilam corretamente e atempadamente a informação contida nas demonstrações financeiras corrigidas.

Alternativamente, o mercado pode sub-reagir a esta má notícia de forma similar ao que acontece quando os auditores colocam em causa o princípio da continuidade da empresa (e.g., Taffler, Kausar and Tan, 2009). A abordagem das finanças comportamentais introduzindo a questão dos limites à arbitragem ou os enviesamentos cognitivos dos agentes de mercado podem ter um papel explicativo importante.

Outro dos resultados retirados desta revisão sistemática é que os mercados apresentam poder de antecipação em relação às demonstrações financeiras corrigidas. De facto, alguns dos estudos reportam retornos anormais negativos e significativos no período anterior à correção das demonstrações financeiras (e.g. Hribar and Jenkins, 2004; Gleason et al., 2008) e que a atividade de venda a descoberto também aumenta significativamente nesse período (e.g., Desai et al., 2006; Drake et al., 2015). Parece assim importante investigar o comportamento dos agentes de mercado sofisticados, os quais apresentam poder explicativo nas alterações do valor de mercado das empresas, como é o caso dos analistas financeiros. Uma das questões que poderão ser exploradas futuramente relaciona-se com a forma como os analistas financeiros ajustam as suas recomendações e preços alvo no período anterior às correções das demonstrações financeiras. O estudo do comportamento dos analistas pode assim contribuir para perceber se estes agentes apresentam poder de antecipação deste evento e aumentar a lista de fatores explicativos da reação de curto-prazo dos mercados. Em particular, é importante testar o impacto de curto-prazo das demonstrações financeiras corrigidas condicional à opinião dos analistas na data do evento.

A revisão sistemática da literatura permite também identificar outras consequências relacionadas com a apresentação de correções às demonstrações financeiras, para além da redução no valor de mercado destas empresas. Os resultados dos estudos analisados permitem concluir que, após a divulgação das demonstrações financeiras corrigidas, verifica-se um aumento no custo do capital próprio, um aumento do custo da dívida, uma diminuição na reputação da empresa e um efeito de contágio a outras empresas que operam no mesmo setor de atividade (e.g., Hribar and Jenkins, 2004; Akhigbe and Madura, 2008; Graham et al., 2008; Karpoff et al., 2008; Park and Wu, 2009; Bardos and Mishra, 2014; Chen, 2016). Esta evidência sugere que pode ser importante perceber a forma como os analistas financeiros reagem a este evento contabilístico e se continuam interessados em seguir estas empresas após a apresentação das correções.

Esta questão pode ser testada através de testes à significância das diferenças nas recomendações e preços alvo antes e após a divulgação do evento assim como se a percentagem de analistas financeiros que cessa a cobertura destas empresas é significativa.

Palavras chave: alterações contabilísticas; demonstrações financeiras; erros contabilísticos; fraude; mercado de capitais.

ABSTRACT

This dissertation reviews the literature systematically regarding the impact of financial restatements on financial markets and identifies some research avenues that can be explored in future empirical work. This accounting event is a clear case of bad news and affects several market participants.

The methodology employed is the systematic review of the literature that aims at minimising the weaknesses and biases of the traditional literature review. One of the most robust conclusions is that the short-term market reaction to the disclosure of a restatement varies between 1.4% and 20%. The magnitude of the impact depends on the cause and reason for the restatement, who initiates it, if there is litigation and if there is fraud. In the long-term, it is not clear if the market fully assimilates the information contained in a financial restatement.

There is also evidence that the market anticipates the publication of a financial restatement given the significant and negative abnormal returns in the pre-event period. Also, the short-selling activity increases in the pre-event period and during the days surrounding the disclosure of such accounting event. Together, these findings suggest that market participants can anticipate this event. Moreover, financial restatement firms experience an increase in the cost of capital, an increase in the cost of debt, a decrease in the reputation of the company and cause a contagious effect on other firms operating in the same industry.

The results of this systematic review emphasise that the market impact of financial restatements is a relevant topic in the accounting and finance domain and there are some research avenues that may be explored in further empirical work related to the long-term dynamics of financial markets and the role of some sophisticated agents in the phenomenon.

Keywords: financial markets; financial statements; fraud; irregularities; restatements.

LIST OF FIGURES

Figure 2.1 Total restatements by year	10
Figure 2.2 Number of Reissuance Restatements: 2005 - 2016.....	11
Figure 2.3 Total Revision Restatements by Year	12
Figure 3.1 Systematic Review Steps, adapted from Denyer and Tranfield (2009)	23
Figure 4.1 The age profile of the papers.....	33

LIST OF TABLES

Table 2.1 Items restated.....	15
Table 3.1 Consultation Group.....	24
Table 3.2 Keyword Search	25
Table 3.3 Criteria and rationale for exclusion	28
Table 4.1 Number of papers by search string	30
Table 4.2 Selection of papers process	31
Table 4.3 List of papers included in the systematic review.....	32
Table 4.4 Distribution of studies by journal and respective ranking	34

LIST OF ABBREVIATIONS

AA	Audit Analytics
AICPA	American Institute of Certified Public Accountants
AQ	Accrual Quality
AR	Abnormal Returns
BF	Behavioural finance
B-ON	Biblioteca do conhecimento online
CAR	Cumulative Abnormal Returns
CEO	Chief Executive Officer
EMH	Efficient Market Hypothesis
E.U.A	Estados Unidos da América
FASB	Financial Accounting Standards Board
GAAP	Generally Accepted Accounting Principles
GAAS	Generally Accepted Auditing Standards
GAO	Government Accountability Office
IFRS	International Financial Reporting Standards
PCAOB	Public Company Auditing Oversight Board
SEC	Securities and Exchange Commission
SOX	Sarbanes-Oxley Act
US	United States

TABLE OF CONTENTS

LIST OF FIGURES	xiv
LIST OF TABLES.....	xv
LIST OF ABBREVIATIONS.....	xvi
CHAPTER 1 - INTRODUCTION.....	1
CHAPTER 2 - KEY LITERATURE	3
2.1 Accounting History	4
2.2 Concept of Restatements.....	8
2.2.1 Trends.....	9
2.2.2 -Stealth Restatements	13
2.2.3 Causes and Reasons.....	15
2.2.3.1 Causes	15
2.2.3.2 Reasons	16
2.2.4 Consequences.....	18
2.3 Efficient Market Hypothesis	19
2.4 The relevance of the study	21
CHAPTER 3 - METHODOLOGY.....	22
3.1 The rationale of Systematic Literature Review.....	22
3.2 Systematic Review Description.....	23
3.2.1 Theme.....	23
3.2.2 Scoping Study and Consultation panel	23
3.2.3 Delimitation of research papers.....	25
3.2.3.1 Electronic databases.....	25
3.2.3.2 Selection of keywords and search strings.....	25
3.2.4 Selection and Evaluation	27
3.2.4.1 Elimination of duplication.....	27
3.2.4.2 Exclusion criteria based on the reading of titles and abstracts.....	27
3.2.4.3 Inclusion criteria based on the reading of full text papers	28
3.3 Literature synthesis process	29
CHAPTER 4 - FINDINGS.....	30
4.1 Descriptive analysis of the selected papers.....	30
4.1.1 Process description.....	30

4.1.2 The sample papers: Authors, Year and Journal	31
4.2 Report of the findings	35
4.2.1 Stock Market Reaction	36
4.2.1.1 Short-term.....	36
4.2.1.2 Short-run market reaction according to the restatement cause.....	37
4.2.1.3 Short-run market reaction: REITs vs non-REITs.....	38
4.2.1.4 Short-run market reaction: the issue of fraud.....	38
4.2.1.5 Short-run market reaction: who initiates the restatement?.....	39
4.2.1.6 Short-run market reaction: impact on risk	40
4.2.2 Long-term market reaction to restatements.....	40
4.2.3 Cost of Capital	41
4.2.3.1 Cost of equity	41
4.2.3.2 Cost of equity, litigation and risk price	42
4.2.3.3 Cost of Debt.....	42
4.2.3.4 Restatements and firm growth	44
4.2.4 Short selling	44
4.2.4.1 Short selling around restatements	44
4.2.4.2 Short selling and Accruals.....	45
4.2.4.3 Naked short sales and restatements.....	46
4.2.5 Reputation.....	46
4.2.6 Financial restatements and industry effect	47
CHAPTER 5 - CONCLUSION.....	49
5.1 Implications for further research	49
5.2 Limitations	52
5.3 Methodology appraisal	52
LIST OF REFERENCES.....	53
Appendix I: Summary of selected papers.....	61
Appendix II - Financial Restatement Category Descriptions	69

CHAPTER 1 - INTRODUCTION

Financial restatements are related to revisions of financial statements already disclosed containing errors. This event is directly related to the accounting quality of financial reporting and is particularly relevant to managers, shareholders, auditors, financial analysts and regulators. The percentage of public companies disclosing financial restatements varies between 6% and 13% depending on the year and the academic research highlights that restatement firms significantly decrease their market value in the pre-event period and during the surrounding days of the announcement.

This dissertation systematically reviews the literature on the impact of financial restatements in the dynamics of financial markets. In particular, the objectives of this work are as follows:

1. Develop a scoping study to understand the main topics related to the financial restatements and the dynamics of financial markets. This understanding is expected to identify the most relevant keywords allowing the systematic review of the literature;
2. Design a research strategy allowing the identification of academic papers addressing financial restatements and its impact on the financial markets;
3. Identify and understand the most relevant issues in the connection between these two areas and the most recent developments;
4. Identify the gaps in the literature that offer research opportunities in future empirical work.

The focus of this dissertation is the US market for several reasons. It was clear from the beginning that most of the research on this topic is based in the US. In addition, the US has the biggest and most developed financial market and firms operating in the US share the same legal environment. As such, restricting the focus in the US ensure robust conclusions and that legal or reporting issues do not bias the results.

This dissertation begins with a scoping study analysing the key literature to better understand the two main areas under analysis: -Financial restatementsø and -Financial

Marketsø It provides a synthesis of the main historical events related to the evolution of accounting that impact on the financial reporting and discusses the relationship between financial restatements and accounting quality. The concept of financial restatements is discussed and enriched with an analysis and trend of the restating activity in the period between 2001 and 2016. Next, it identifies the causes and reasons that drive restatements and discusses some of the consequences not directly related with financial markets. The scoping study also presents a brief discussion about the dynamic of financial markets by exploring the Efficient Market Hypothesis and some issues related to Behavioural Finance.

This scoping study was crucial to provide general knowledge of the broad literature of financial restatements and financial markets and allows the identification of the keywords that are used in the systematic review of the literature. The systematic review of the literature is the methodology of this dissertation and follows the protocol developed by Tranfield, Denyer and Smart (2003) and Denyer and Tranfield (2009). The use of the protocol identifies a sample of 19 relevant academic studies that are systematically reviewed in order to identify the most relevant issues and the most recent developments in the connection between the financial restatements literature and the literature on the impact of accounting events.

The systematic review of the literature identifies and discusses several issues in this domain. The report of the findings discusses the short and long-term impact of financial restatements in the dynamics of financial markets, the variables that impact in the magnitude of the negative impact, the ability that some market participants have to anticipate such bad news event and the different consequences in the pre and post-event period. The findings of the systematic review are crucial to identifying some research avenues that can be explored in future empirical work.

The remainder of this dissertation is organized as follows: chapter 2 reviews the key literature to understand the scope of the research. Chapter 3 presents the methodology employed in this systematic review of the literature and chapter 4 discusses the findings of the dissertation. Finally, chapter 5 concludes by discussing the implications for further research, limitations and methodology appraisal.

CHAPTER 2 - KEY LITERATURE

High quality financial reporting has been a concern for companies and stakeholders for a long time. In the beginning of the 21st century, after the debacles of WorldCom and Enron (both declared bankruptcy) in the US and several other scandals around the rest of the world (e.g., Adecco International in Switzerland, Ahold NV in The Netherlands, Parmalat in Italy), the quality of financial reporting became a major issue. In fact, in 2008, the UK former Prime-Minister Gordon Brown stated at the United Nations that efforts should be made to *build a new global financial order founded on transparency, not opacity; rewarding success, not excess; responsibility, not impunity; and which is global, not national*, and that *transparency and improved accounting standards* should be a new standard in order to put an end to a culture of irresponsibility (Jacob and Madu, 2009).

This chapter presents an initial review of the literature addressing financial restatements. It starts by highlighting some relevant historical facts in the development of accounting, the first attempts to establish accounting principles to be universally used by firms' financial statements, the more recent attempts to increase investors' confidence in the corporate financial reports and the search for accounting quality and transparency in the financial reporting and financial markets. In a second stage, this chapter discusses financial restatements and identifies the reasons, motives and consequences of such accounting event. Central to the discussion is how financial markets respond to restatements. The last part of this chapter looks at the concept of 'market efficiency' and how it relates to financial restatements.

2.1 Accounting History

The advent of World War I and the many harmful consequences forced Germany to pay for the damage caused to other Nations (Treaty of Versailles). This obligation contributed to a crisis of hyperinflation in Germany, causing the maladjustment on the values of assets/liabilities in the companies. To solve the problem of adjustment, Eugene Schmalenbach developed the dynamic theory of price adjustment based on two fundamental principles: the periodic income (as a measure of financial efficiency) and comparability (Martínez Tapia, 1995).

Schmalenbach's work changed the static vision of accounting. Accounting became dynamic and based on the recognition of assets valued at cost and then depreciated/amortised over time. Such change had a profound impact on accounting theory in the United States during the 20th century. In fact, at the beginning of that century, accounting theory was poorly organised as it was the result of a mix of texts and treatises written by academics and accountants prescribing how financial reporting should be done. As such, there was no standardisation of the principles underlying accounting, and this is one of the reasons that may have led to the financial crisis of the late 1920s.

The enactment of the Securities and Exchange Act (SEC), which established the commission of the same name in the 1930s and the creation of the American Institute of Certified Public Accountants (AICPA) were the first serious steps towards establishing a set of accounting principles and a 'Conceptual Structure' that could be universally used by US firms (Baker, 2017). Nevertheless, it was only in 1973, with the establishment of the Financial Accounting Standards Board (FASB), that the 'Conceptual Framework' came about for financial reporting in the United States. The mission of this organism was

to establish and improve financial accounting and reporting standards to provide useful information to investors and other users of financial reports and educate stakeholders on how to most effectively understand and implement those standards. Despite all the developments in the accounting thinking, *accounting theorists agree that no comprehensive theory of accounting has yet been developed* (Coetsee, 2010).

Importantly, the accounting standards set by the FASB are the generally accepted accounting principles (GAAP). More recently, the scandals occurred in the beginning of the 21st century led the U.S. Congress to approve the Sarbanes-Oxley Act (SOX) to regain investors' trust. The SOX demands firms to be accountable for their internal control procedures and their financial reporting system. Furthermore, the integrity of financial statements must now be analysed by an independent external auditor, who is responsible for ensuring that the financial information reported by the firm's management to stakeholders is free from material errors and is generated in accordance with the US GAAP (GAO, 2006). In addition, the SOX led to the creation of the Public Company Auditing Oversight Board (PCAOB) with the mission to *oversee the audits of public companies in order to protect the interests of investors and further the public interest in the preparation of informative, accurate, and independent audit reports. The PCAOB also oversees the audits of broker-dealers, including compliance reports filed pursuant to federal securities laws, to promote investor protection.*

2.2 Accounting Quality

Flanagan, Muse, and O'Shaughnessy (2008) highlights that *“High quality financial reporting enables capital markets to function properly”*. This is a very important concept since it suggests that stakeholders can rely on financial reporting when interacting with capital markets as financial statements are to be *“transparent (i.e., easily understood), complete and truthful in terms of financial performance.”*

According to the FASB Conceptual Framework, financial statements are useful if they convey fundamental qualitative characteristics, namely: relevance, faithfulness, comparability, verifiability, timeliness and understandability. However, despite the general agreement on the importance of high quality financial reporting, how can we measure the quality of financial reporting?

Since companies are required to issue restatements to correct past reporting mistakes, restating activity may provide indications about the sources, the origins and the motivation of companies for providing poor quality financial reporting. Several authors have suggested that a high incidence of accounting accruals may be an indicator of low accounting quality. For example, Bradshaw, Richardson, and Sloan, (2001) and Sloan, (1996) suggest that high accrual level leads to an increase of information uncertainty, which causes an erroneous evaluation by investors since they are not able to use current earnings as an indicator of future earnings. In the same vein, Richardson, Tuna, and Wu (2003) suggests that companies are pressured by the markets to report positive results in order to attract external finance and/or lower interest rates. This pressure may lead them to enhance earnings management through the use of accruals. Therefore, the discretionary use of accruals by management might also be an indicator of the low quality of financial reporting.

Dechow and Dichev (2002) developed a metric to evaluate accrual quality (AQ) and earnings quality. This paper submits that *“observable firm characteristics can be used as instruments for accrual quality”*, and this metric allows to infer that *“large accruals signify low quality of earnings, and less persistent earnings”*. A more recent study by Hribar, Kravet, and Wilson, (2014) suggests that the privileged access of auditors to

clients accounting information, enables them to charge the auditing fee according to the quality of a client's financial information. It seems that the higher the amount charged, the lower is the quality of financial reporting. The authors find evidence that unexplained audit fees are positively related to low accounting information and to a higher possibility of restatements and fraud.

Consequently, measuring financial reporting quality is likely to be related to several factors. Unlike the principles-based standards issued by International Financial Reporting Standards (IFRS), financial reporting in the United States is GAAP rule based. As a consequence, it is reasonable to assume that financial reporting in the US is not too much subject to professional judgement. Therefore, accounting quality will often be subordinated to interpretation and application of rules and principles, as well as incentives to manipulation, which also puts into question the ethical framework of those involved in the preparation and disclosure of financial statements.

2.2 Concept of Restatements

To keep its shareholders and the general public informed about its activities, publicly held companies based in the US have to regularly submit their financial statements to the SEC, which are then made available to the general public. This process is done by filling in multiple reports with different objectives. The Annual Reports on Form 10-K contains audited financial statements and a discussion of the results and performance of the company. To report unaudited financial statements for the quarters of the fiscal year Form 10-Q is used. These reports are used to make performance comparisons with the year counterpart. Finally, the filling of a Form 8-K happens when there is a need to announce events with significant impacts, such as the announcement of bankruptcy.

Financial restatements, defined by the FASB as *“a revision of a previously issued financial statement to correct an error”*, are also officially filed using an 8-K form. In particular, the SEC Final Rule¹ - Additional Form 8-K Disclosure Requirements and Acceleration of Filing Date, requires Form 8-K, Item 4.02 to be filed if the company or its auditor concludes that: *“any previously issued financial statements, covering one or more years or interim periods, (i) should no longer be relied upon because of an error in such financial statements.”* In addition, given the intent of the transparency of capital markets, the announcement of a restatement should be made issuing a press release combined with the filing of form 8-K (4.02 Item) as well as the respective corrections of periodic financial reports (10-K or 10-Q).

The process of issuing a restatement may be triggered by the firm, by its independent auditor or due to an investigation headed by the SEC (Flanagan et al., 2008). When an error is found, the first order of business is to determine if it is materially relevant or not. Regarding this issue, Tan and Young (2015) note that *“the FASB and the SEC provide several authoritative guidelines that discuss the establishment of materiality and the reporting of restatements of financial statements.”* When auditors conclude that previously issued financial statements contain material omissions or misstatements, the Generally Accepted Auditing Standards (GAAS ó created by AICPA) require them to

¹ Effective date 23 August 2004 <https://www.sec.gov/rules/final/33-8400.pdf>.

advise the client to make the appropriate disclosures, and to take the necessary steps to ensure this occurs (AICPA, 2002, Section AU 561).²

Concerning the issue of materiality, (material or immaterial omissions or mis-statements) Tan and Young (2015) distinguish two classes of restatements: little and Big R. The little R is a restatement disclosed because of several immaterial errors that accumulate during a year until they become a material error. Big R restatements, address a material error that calls for the re-issuing of a past financial statement.

Unlike a Big R restatement, the little R restatement does not require an 8-K form or a withdrawal of the auditor opinion. However, as noted by Chung and McCracken (2014), little R restatements will have an impact on stakeholders since such an event will always raise doubts by investors and regulators about the quality of financial reporting.

2.2.1 Trends

According to the Government Accountability Office (GAO, 2002), during the period from 1997 to 2002, the number of restatements exhibit a steady increase resulting in losses of \$100 billion on market capitalisation. A follow-up study by the GAO (GAO, 2006) shows that the number of public companies restating financial statements grew from 3.7 percent of the total listed firms in 2002 to 6.8 percent in 2005. As a consequence of this growing number of restatements and its market impact, the level of concern regarding the reliability of financial statements has never been higher (Hee, 2011).

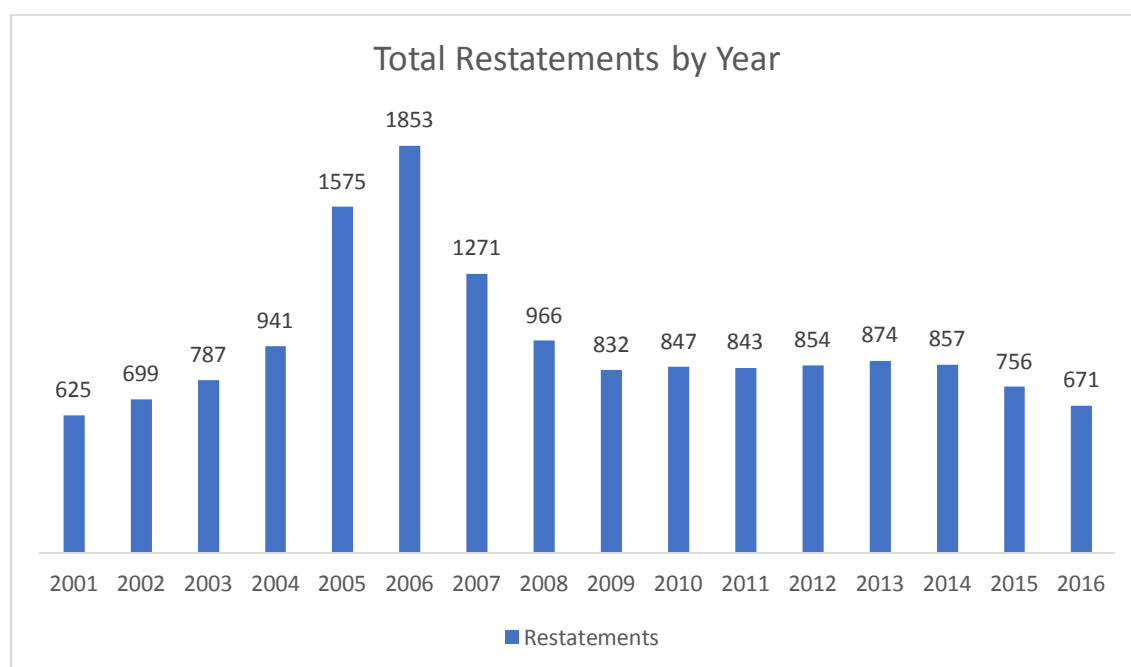
In 2010, Audit Analytics (AA) issued the "2010 Financial Restatements - A Ten Year Comparison" report, which looks at all the US financial restatements since 2001. Since then, reports are issued on an annual basis analysing how restatements evolve over time. Currently, Audit Analytics holds a restatement database that covers all filer types: accelerated filers (restating companies that have at least \$75 million in issued share capital, but less than \$700 million); non-accelerated filers (firms with less than \$75 million on public float); funds and trusts; new company registrations; small business

²<https://www.aicpa.org/content/dam/aicpa/research/standards/auditattest/downloadabledocuments/au-00561.pdf>.

filers and foreign registrants. Restatement records come from one of two sources: 8-Ks filed, or periodic reports. In 2013, Audit Analytics expanded its search process by reviewing the SEC comment letters from 2005.

Figure 2.1 presents the total number of restatements by year from 2001 to 2016. As can be seen, the number of restatements increased from 625 in 2001 to 1,853 in 2006. The large increase in the number of restatements in the period between 2005/6 may be explained by the SEC 8-K disclosure requirements following 2005, suggesting that these requirements somehow impacted in the number of restatements issued by listed companies. The number of restatements between 2009-2016 vary between 832 and 671.

Figure 2.1 Total restatements by year



Data source: Audit Analytics

The comparison between the number of restatement companies with the total number of listed companies helps us to understand the proportion of companies engaging in restatement issues. In 2005, the number of companies listed on NYSE, Nasdaq, and Amex, was 6,743 (GAO, 2006), meaning that 12.8% of listed companies have restated previous financial statements. In 2010, 847 out of 12,713³ listed companies issued a restatement, which represents 6.7% of the total number of firms. In 2016, 671 public

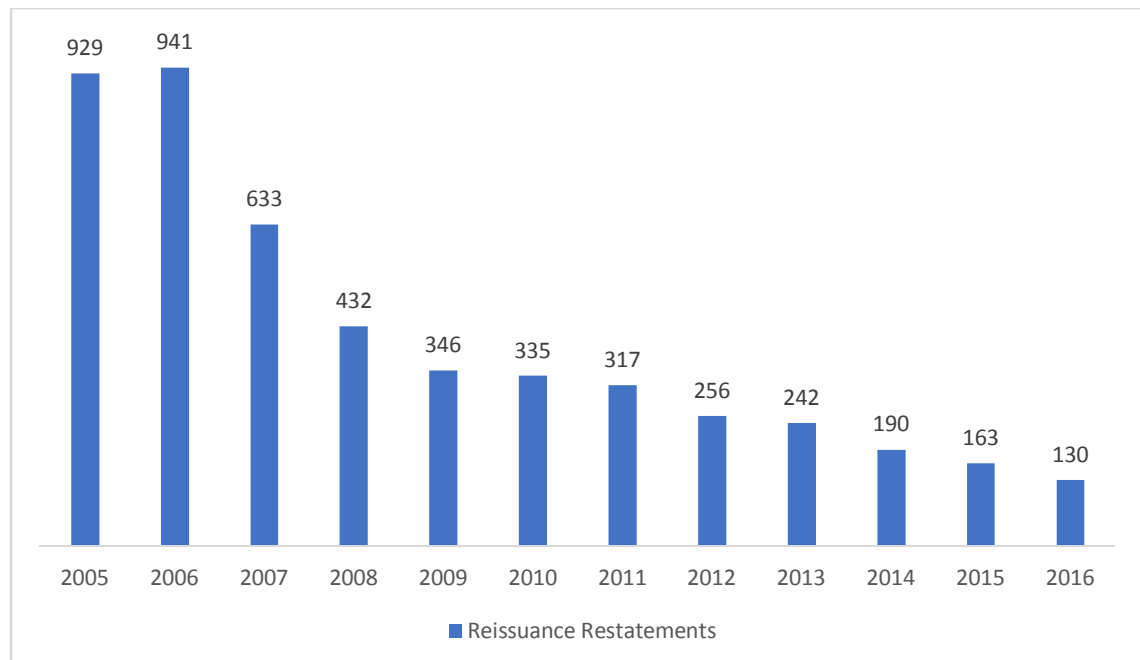
³ <https://blogs.wsj.com/cfo/2017/06/07/financial-restatements-hit-six-year-low/>.

companies issued a restatement out of 9,831 listed companies, representing 6,8% of the total number of firms. The decrease in the number of listed companies means fewer companies reporting to the SEC, and fewer companies reporting might explain part of the recent decline in the number of errors.

However, it needs to be noted that these figures may not match exactly the numbers reported by other studies due to differences in methodology. This caveat is also relevant for statistics shown in Figure 2.2 and Figure 2.3. The number of reissuance restatements (Figure 2.2), as previously referred to as "Big R" restatements, address a material error that calls for the re-issuing of a past financial statement. Alternatively, Revision Restatements, or "little r" restatements, deal with immaterial misstatements, or adjustments made in the normal course of business (Figure 2.3).

Figure 2.2. shows a decline in the number of Reissuance Restatements from 929 in 2005 to 130 in 2016. This positive signal may be explained, at least partially, by the effect of SOX and the improvement of internal controls over financial reporting.

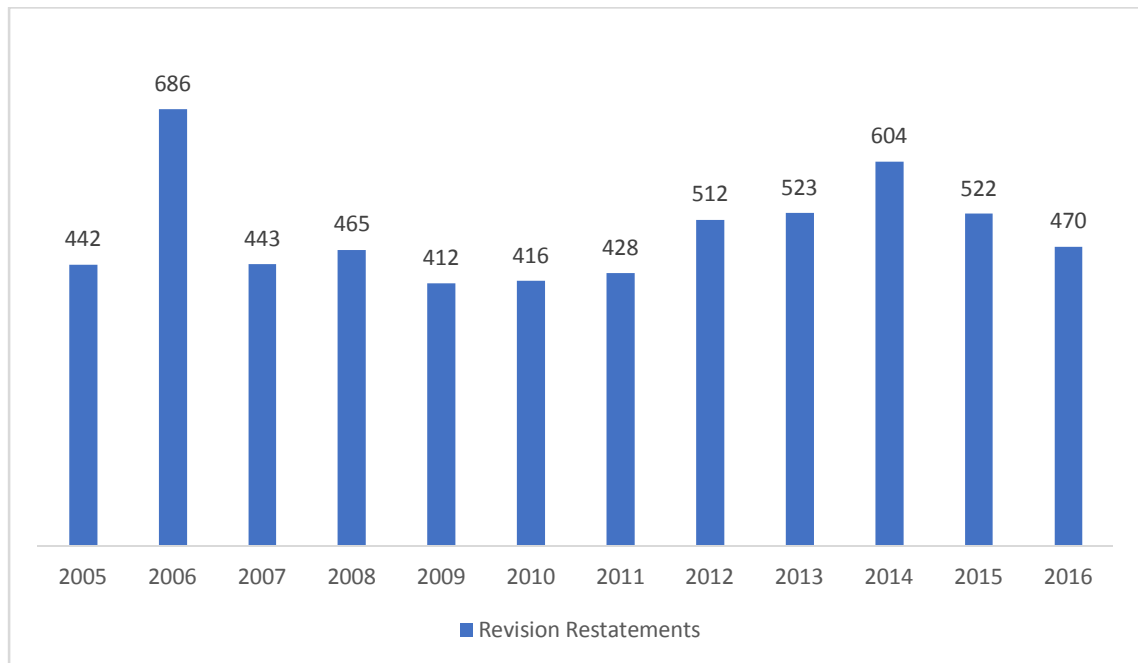
Figure 2.2 Number of Reissuance Restatements: 2005 - 2016.



Data source: Audit analytics

Figure 2.3 shows the number of Revision restatements also known as -little rø between 2005 and 2016. Unlike Reissuance Restatements, the pattern for Revision Restatements does not follow the same decreasing trend.

Figure 2.3 Total Revision Restatements by Year



Data source: Audit analytics

2.2.2 Stealth Restatements

Files, Swanson, and Tse (2009) define three levels of *prominence*, *i.e.*, the significance of a press release based on the GAO (2002) database and firms' press releases announcing the issuance of a restatement. The authors classify a restatement as *highly* prominent if the press release is through a headline. Press releases referring to the restatement only in the body of the text are classified as *medium* and those discussing the restatement in a footnote are labelled as *low*. Files et al. (2009) shows that firms providing less prominent restatement press releases, which could be seen as *stealthy*, are less likely to exhibit a strong negative market reaction. This paper also shows that, in the post-event period, firms that have higher levels of analysts' coverage have their prices adjusted faster. In addition, Files et al. (2009) also finds that the probability of these companies being sued for securities fraud is low in the case of *low* prominence press releases.

Hennes, Leone, and Miller (2008) uncovers relevant findings by relating *stealth* and the importance of fraud in financial reporting. After analysing previous research on financial restatements, they conclude that these earlier studies often assume some *stealth* motives, *i.e.*, that behind a restatement there is implied intentional misreporting (irregularities). However, these studies used restatements databases that include *errors* and irregularities. Therefore, Hennes, Leone, and Miller (2008) contribute to increase the accuracy of research results by developing a method allowing the distinction of restatements between *unintentional misapplications* of GAAP (errors) and intentional misreporting (irregularities).

On the 2nd of July 2013, the SEC issued a press release⁴ establishing The Financial Reporting and Audit Task Force. The main purpose of this task force is to investigate fraudulent or inadequate reporting, with particular emphasis on the Revision restatements (non 8-K restatements), which the SEC has considered more susceptible to fraud. Since one of the consequences of restatements is the loss of investors' confidence in financial reporting, it was considered that the issue of Revision Restatements instead of Reissuance Restatements, might improve confidence and also might mitigate some managers' *nefarious* ways in their financial reporting. (Tan and Young, 2015)

⁴ <https://www.sec.gov/news/press-release/2013-2013-121.htm>.

Using the analysis of Hennes et al. (2008), Kim, Baik, and Cho (2016) addresses the issues of sorting and detecting financial restatements. They developed three multi-class financial models to detect and classify misstatements according to fraud intention: multinomial logistic regression, support vector machine and Bayesian networks. Further, they used cost-sensitive learning (using MetaCost) to improve detection and classifying.

2.2.3 Causes and Reasons

The analysis of the existing literature attempting to explain the content of restatements reveals that some researchers use the terms "cause" and "reason" as synonymous whereas other times they use these terms to explain what could originate and tend to the restatement. Section 2.2.3.1 outlines the causes - referring to the accounting issues - and the section 2.2.3.2 identifies the reasons behind restatements, i.e. what is in its origin.

2.2.3.1 Causes

The Sarbanes-Oxley Act of 2002 was enacted to mitigate investors' distrust towards corporate financial reporting. One of the consequences of SOX was the requirement for the implementation of various procedures in order to improve firms' internal controls concerning financial reporting (Weili and Sarah, 2005).

The 2006 GAO report analyses and describes the causes of restatements. Table 2.1 summarises the information provided by the GAO in that report:

Table 2.1 Items restated

Cause	January 1997 - June 2002 (%)	July 2002 - September 2005 (%)
Cost or expense	15,7	35,2
Revenue recognition	37,9	20,1
Securities related	5,4	14,1
Restructuring, assets, and inventory	8,9	11,8
Reclassification	5,1	6,8
Other	14,1	6,5
Acquisitions and mergers	5,9	3,6
Related-party transactions	3	1,8
In-process research and development	3,6	-

Source: GAO (2006)

Table 2.1 compares the items restated between 2 different periods (January 1997- June 2002 and July 2002 ó September 2005). As can be seen, there is a substantial drop in restatements announced for revenue recognition reasons between the first and the second period whereas the opposite happens with the restatements announced for cost or expense. Cost or expense cause is the most frequent in the more recent period, and

revenue recognition is the second most frequent cause for a financial restatement in the same period. Appendix II presents a description of each cause according to the GAO.

2.2.3.2 Reasons

It is often assumed that a financial restatement is due to fraudulent behaviour. Yet, this may well not be the case. Plumlee and Yohn (2010) study this issue using a sample of 3,744 restatements occurring from 2003 to 2006. The authors find that restatements attributed to errors in the corporation's internal controls represent 57% of the total occurrences. Further, intentional misrepresentation (*i.e.*, fraud) and problems with complex transactions account each for 3% of the total events in the sample. Finally, Plumlee and Yohn (2010) report that the remaining 37% are due to incorrect use of the accounting standards.

Related research shows that one of the reasons for weaknesses in internal company management controls for financial reporting is the lack of investment in qualified accounting workforce (Weili and Sarah, 2005). Similarly, Guo, Huang, Zhang, and Zhou (2016) finds that fair behaviour towards employees and motivation are the key to lessen the susceptibility of unintentional errors, and consequently reduce the event of a financial restatement. Jensen (2005) takes a complementary approach and analyses the 'agency costs of overvalued equity' and presents the 'earnings management' as a major reason for the collapse of value in companies as well as the reason for the failure of others (*e.g.*, Enron and WorldCom). In addition, Jensen (2005) argues that corporate managers are rewarded when they meet internal targets. However, the achievement of such internal goals is not the relevant variable to the markets as they reward or penalise the value of the firm depending on their performance in comparison to financial analysts' expectations.

In a subsequent study, Efendi, Srivastava, and Swanson, (2007) finds that the desire of Chief Executive Officers (CEOs) to hold in-the-money stock option is also an important issue in this context. In particular, the authors report that this increases the probability of the firm to disclose financial statements that are not aligned with the GAAP and, consequently, having to issue a restatement.

Board gender diversity may also shed some light on the reasons for restatements. In fact, Abbott, Parker, and Presley (2012) use a matched-pair sample of 278 firms that issued restatements with 278 similar non-event firms. The multivariate approach reveals that the presence of at least one female board director reduces the likelihood of financial restatement.

2.2.4 Consequences

This section summarises some of the consequences of financial restatements, all of which are *not* directly related to the impact of such an event on financial markets: profitability, labour market and potential lawsuits.

Financial restatements are likely to be related to a decrease in firm's net income. This negative impact on profitability is not surprising given that about 40% of the restatements reviewed by GAO study of 2006 were due to deficient company revenue recognition. Plumlee and Yohn (2010) finds similar results on this issue.

Regarding labour markets, Suraj (2005) reports that directors and audit committee members of restating firms have a higher probability of being sacked. Similarly, Desai (2006) finds evidence of a higher turnover rate for managers of companies involved in earnings restatements compared with counterparts, and reduced perspectives of being hired for similar posts or with the same employment quality. Carver (2014) adds new insights to this discussion by concluding that the CEO influence on the board and on the nominating process of audit members may be a determinant in the turnover of the audit members.

Lev, Ryan, and Wu (2008) show that restatements also increase the likelihood of lawsuits initiated by investors who realize that they have made decisions based on biased financial statements. As argued by Putman, Griffin, and Kilgore (2009), this is an important topic since, arguably, it calls into question the ethics of financial reporting as being a game, and consequently jeopardising the trust and integrity of the financial reporting system. Clearly, if restatements affect the reliability of financial reporting, company managers should strive to provide better forecasts after such an event so that they can regain their own, and the firm's reputation. According to Ettredge, Huang, and Zhang (2013), following a restatement, managers' behaviour is comprised of risk averting forecasting and consequently a loss of information on earnings content and a more conservative financial reporting is noted (K. Y. Chen, Elder, and Hung, 2014; Wilson, 2008).

2.3 Efficient Market Hypothesis

The impact of accounting events on the dynamics of financial markets has been a major issue in the accounting-based market research. In the context of this dissertation, it is crucial to understand whether the disclosure of a financial restatement information is efficiently assimilated by the markets. Efficient Market Hypothesis (EMH) advocates that financial markets assimilate immediately and without bias, any relevant information so that, in an efficient market, on average, prices fully reflect all available information (Fama, 1970).

Fama (1970) discusses three categories of market efficiency: the strong, the semi-strong and the weak versions of the EMH. The weak version assumes that prices represent all price-based historical information. This weak-form contends that it is not possible to predict the future value of an asset, and, that any change in the price of that asset is due to unexpected information. Consequently, it would not be possible for investors to obtain abnormal returns based on analysis of price-based historical information. The semi-strong form implies that the market value of an asset adjusts immediately to all publicly available information. Finally, the strong-form of the EMH assumes that current price of assets incorporates all public and private information available. Under this very restrictive version, it is contended that investors cannot consistently generate abnormal returns even when they have access to privileged information.

The EMH has been severely criticised in the last decades by many authors who claim that it clearly fails to adhere to reality. Among the criticism, Behavioural finance (BF) has developed as a competing alternative theoretical framework, arguing that psychological biases and limits to arbitrage impede markets to work efficiently as prescribed by Fama (1970).

Consequently, restatements present an interesting opportunity to test to what extent the semi-strong form of the EMH holds in real markets. Clearly, restatements provide crucial information that will potentially impact on the dynamics of financial markets and particularly on the current stock price of the announcing firm. In an efficient market, the impact of restatements should occur promptly and without bias, that is, with the stock prices of the announcing firms adjusting fully and quite rapidly following the

disclosure of such public information. Conversely, any other scenario would indicate some failure of the EMH and would provide evidence supporting the arguments put forward by BF.

Presley and Abbott (2013) study the overconfidence of CEO and the incidence of financial restatements. Among their findings, there is the evidence *that overconfidence is a relatively persistent phenomenon as it is a significant factor in the incidence of restatements in both the pre-SOX and post-SOX control environments.*

2.4 The relevance of the study

This second chapter of this dissertation confirms that financial restatements constitute a relevant issue in the accounting and finance domain. This first approach to the restatements literature also allows concluding that financial restatements impacts on several important research topics such as accounting quality, regulators, investors, auditors, financial markets, etc.

The relationship between financial restatements and the dynamics of financial markets seems to be an important topic that can be systematically reviewed to structure existing knowledge on the importance of restating activity. In addition, this systematic review allows the researcher to dive in the financial reporting area and the understanding of the most relevant topics in this area. More specifically, the importance of financial reporting for capital markets and its relationship with the EMH and BF could provide future research avenues for subsequent empirical work as well as identify a potential contribution that can be developed on the author's PhD.

The primary goals of the systematic review are:

1. Design a research strategy allowing the identification of academic papers addressing financial restatements and its impact on the financial markets;
2. Identify and understand the most relevant issues in the connection between these two areas and the most recent developments;
3. Identify the gaps in the literature that offer research opportunities in future empirical work.

CHAPTER 3 - METHODOLOGY

This dissertation follows the systematic review methodology described in Tranfield, Denyer, and Smart, (2003). The systematic review process, as opposed to the traditional literature review method, employs an explicit and transparent method to identify, select and review the relevant studies related to the research topic.

3.1 The rationale of Systematic Literature Review

Literature reviews may be naturally biased because of the idiosyncrasy of each researcher. If a literature review is intended to be objective, transparent, and replicable, then it should involve a systematic search process with clear and explicit criteria for inclusion and exclusion of papers in order to produce an unbiased final set of research papers for the purposes of the review.

Tranfield et al. (2003) propose the use of the systematic review of the literature in the field of management, which was originally developed in the medical sciences. In particular, *systematic reviews differ from traditional narrative reviews by adopting a replicable, scientific and transparent process, in other words a detailed technology that aims to minimize bias through exhaustive literature searches of published and unpublished studies and by providing an audit trail of the reviewer's decisions, procedures and conclusions* (Tranfield et al., 2003: 209).

This dissertation draws on this literature and develops a research strategy which leads to results that are easily replicable and ascertained by others. Moreover, the methodology employed allows the update of the results and the integration of future findings that may arise in the research area of interest. According to Denyer and Tranfield (2009), a systematic review process consists of 5 distinct steps, as illustrated in figure 3.1.

Figure 3.1 Systematic Review Steps, adapted from Denyer and Tranfield (2009)

1. Plannig the review	2. Locating Studies	3. Selection and Evaluation	4. Analysis and synthesis	5. Findings
<ul style="list-style-type: none"> ÉTheme choice ÉScoping Study ÉConsultation panel 	<ul style="list-style-type: none"> ÉDatabase ÉKeywords ÉSearch Strings 	<ul style="list-style-type: none"> ÉInclusion Criteria ÉExclusion Criteria 	<ul style="list-style-type: none"> ÉExtracting ÉSelection ÉEvaluation 	<ul style="list-style-type: none"> ÉReporting of the Findings

3.2 Systematic Review Description

This section describes and explains the steps followed towards the accomplishment of a systematic review that minimizes the potential problems of a traditional review. However it is important to notice that *there is no such thing as the perfect review* (Hart, 1998).

3.2.1 Theme

The identification of the research topic arises from the discussion with my supervisors. In fact, we agree that the financial restatements area is a very relevant topic in the accounting and finance domain that could be systematically reviewed to identify potential research avenues to explore in a further stage (PhD). Although the existence of several research papers in this area, we believe that new challenges may arise from the discussion between financial restatements and efficient markets, behavioural issues, financial crisis or the need to increase investors' confidence in the dynamics of financial markets.

3.2.2 Scoping Study and Consultation panel

The scoping study is a crucial step to understand the main issues related to the theme to be explored in the systematic review (Tranfield et al., 2003). In addition, it helps to overcome some difficulties of an unexperienced researcher that is trying to give the first steps in this field. After some initial search on the electronic databases, we decided to explore the financial restatements only in the US market. This is because most of the relevant research on this topic is based in the US, because the US market is the most

important market in the world and because companies operating in the US share the same legal environment. This choice ensures that the conclusions are robust and that the research opportunities are relevant to the academic community.

The creation of the Consultation group was an important step to overcome the main difficulties and the questions that were arising along the way. Table 3.1 identifies the members of this panel that are simultaneously the supervisors of this dissertation.

Table 3.1 Consultation Group

Person	Title	Organization	Role in the review
Rúben M. T. Peixinho	Professor of Accounting and Finance	Faculty of Economics	Supervisor
Luís M. S. Coelho	Professor of Accounting and Finance	Faculty of Economics	Supervisor

Professor **Rúben Miguel Torcato Peixinho** holds an MSc in Finance by the University of Algarve, an MSc in Management Research by the University of Cranfield and a PhD in Management, specialised in Accounting and Finance, by The University of Edinburgh. He is a member of the Centre for Advanced Studies and Training in Management and Economics who has authored several papers in accounting and finance. He is also the Director of the Master Course in Accounting. His main research interests are in market-based accounting, financial distress, and security analysis.

Professor **Luís Miguel Serra Coelho** holds an MSc in Finance by the University of Algarve, an MSc in Management Research by the School of Management of the University of Cranfield, and a PhD in Management from the Business School of the University of Edinburgh. He is a member of the Centre for Advanced Studies and Training in Management and Economics. He is both the Director of the Bachelor Course in Management and the Director of the Master Course in Corporate Finance. He has authored several papers in finance and accounting, namely on bankruptcy, and has been an Associate Fellow of the Accounting, Markets and Organizations Group at the Warwick Business School. More recently, Professor Coelho has been also in charge of the 2nd cycle postgrad sector of the Faculty.

The consultation group was essential to minimise the author's inexperience, to guide and supervise all the process of the systematic review, to find relevant conclusions allowing further empirical work and, most of all, to prevent some biases in the research.

3.2.3 Delimitation of research papers

This stage is divided into three steps explained in the two subsequent sub-sections.

3.2.3.1 Electronic databases

The search engine available at the University of the Algarve is B-ON, which aggregates several databases, such as EBSCO or Elsevier. The use of Social Science Research Network (SSRN) was also used since it is an important source of working papers on the fields of economics, finance and accounting.

3.2.3.2 Selection of keywords and search strings

The scope of the papers presented in Chapter 2 and the discussion with the consultation group is the basis for the author's selection of keywords to identify the relevant papers in this systematic review. Table 3.2 presents the final list of keywords divided into the two core areas of interest to which they relate: Financial Restatements and Financial Markets.

Table 3.2 Keyword Search

Subject	Keywords
Financial restatements	Financial restatements
	Restatements announcements
	Accounting irregularities
	Fraudulent disclosures
Financial Markets	Financial Markets
	Market Reaction
	Market Impact
	Share prices
	Reputation
	Shareholders
	Stockholders

Keywords are next combined into six different search strings. These are listed below:

Search string 1: (financial AND restatement*)

This search string⁵ is intentionally very broad and is designed to identify very general papers related to the main field of interest.

Search string 2: (financial AND restatement*) AND (fraudulent AND disclosure* OR restatement* AND announcement* OR accounting AND irregularities)

This search string aims at identifying papers that specifically deal with restatements that are caused by irregularities and fraudulent practices.

Search string 3: (financial AND restatement*) AND ((financial AND market* AND (reaction OR impact))

This search string identifies papers that look at the impact of financial restatements on financial markets.

Search string 4: (financial AND restatement*) AND (shareholder* OR stockholder*)

This string find papers that look at the impact of financial restatements on shareholders.

Search string 5: (financial AND restatement*) AND (reputation)

This string attempts to identify papers that link financial restatements with the issue of a firm's reputation.

Search string 6: (financial AND restatement*) AND (share AND price*)

The last search string specifically searches for the impact of financial restatements on companies' share price.

⁵ The asterisks will allow the inclusion of singular, plural, possessive word and non-possessive cases.

3.2.4 Selection and Evaluation

A systematic review is a strategy that involves searches for keywords in electronic databases. The use of 'keyword searches' is a strategy of processing which has been used in several related academic papers. The first stage of this process is to identify relevant papers on the databases that are available for the purpose of this project. A second stage refines this first stage. It is based on the reading of titles and abstracts of papers so far identified and applies 'exclusion criteria' to reduce the number of papers to a relevant subset. This stage is followed by a complete reading of the final group of papers to ensure that all the papers in the final list match all the inclusion criteria defined in this systematic review. Finally, the presentation of results and the discussion of the findings is the final stage of the review.

3.2.4.1 Elimination of duplication

Considering that the search strings are applied to an engine browser that aggregates several databases, it is therefore important to remove the duplications. This process is made by exporting the results of each search string to the software Mendeley (v. 1.18), which automatically detects and eliminates repeated papers. The result is, therefore, a list of 'non-duplicate' academic papers.

3.2.4.2 Exclusion criteria based on the reading of titles and abstracts

The exclusion criteria summarised in Table 3.3 are then applied to the list of non-duplicate papers. This step aims at removing all contributions that lie outside the described scope and purposes of the systematic review. The criteria are applied to the 'title' and 'abstract' of each paper.

Table 3.3 Criteria and rationale for exclusion

Criteria		Rationale
1.	Articles published in other sources than scholarly journals	Financial restatements are referred to on a daily basis on the different media and other sources than scholarly journals. Since this is a systematic review of academic research, articles published in magazines and newspapers are excluded.
2.	Studies that mention the defined keywords as residual issues or in other contexts than accounting and finance.	Some titles immediately suggest that a few of the identified papers are not relevant for the research. Hence, such studies were excluded at this stage.
3.	3.1. Topics that are not directly related to the impact on financial markets	Legislation that is not directly related to financial restatements and the impact on financial markets.
	3.2. Topics related with financial restatements but approached from different perspectives.	Auditor litigation or auditor and management turnover, as well as corporate control events, are a consequence of Restatements but not directly relate to the impact on financial markets.
	3.3. Studies based on markets other than the United States.	Main restatements database is from the US, and the study is only focusing on this market.

3.2.4.3 Inclusion criteria based on the reading of full text papers

Papers that passed the exclusion criteria are not automatically considered in the final sample. It is important to apply inclusion criteria to evaluate the quality of papers. This final step involves full text reading of the papers that pass the exclusion criteria, and that are tested against the theoretical and empirical criteria defined below.

Empirical papers must contain:

1. Literature review supporting the research questions;
2. Well-defined hypotheses;
3. Methodology clearly stated;
4. Clear definition of the sample;
5. Discussion of the data analysis and results;
6. Results interpretation in the context of the research question(s).
7. Clear contribution to knowledge.

Theoretical papers must contain:

1. Clear description of the research problem;
2. Motivation for the study of the problem;
3. Current state of the art of the problem;
4. Development of a new theoretical model to explain the problem;
5. Discussion of the theoretical model's contribution.

3.3 Literature synthesis process

Consequently, as already indicated, the papers that pass all the criteria described above are included in the final sample and used in the systematic review. In this last step, the main findings of these papers are described and interpreted in the light of the following considerations:

1. What is the starting point of each article vis-à-vis the existing knowledge in the area?
2. What are the key concepts used in the papers?
3. What are the relationships between such key concepts?
4. What are the existing theories?
5. Where are the inconsistencies in existing knowledge?
6. What alternatives can be tested?
7. How can the work of this dissertation contribute to a better understanding of the research question raised?
8. What are the strengths and weaknesses of the available methods?

This chapter presents the methodological issues that are the basis of this systematic review and ensures transparency in the research process. The next chapter presents a descriptive analysis of the selected papers and reports the findings in the form of thematic analysis.

CHAPTER 4 - FINDINGS

This chapter presents and analysis the papers included in the systematic review process. The analysis seeks to identify in each article the research hypotheses, the data used, the methodology and the findings. The chapter is divided into two main sections. First, it presents a descriptive analysis of the selected papers regarding the year of the articles and the respective SCImago -Journals Ranking. Second, the findings are presented thematically.

4.1 Descriptive analysis of the selected papers

4.1.1 Process description

The processing of the search strings identified in the previous chapter provides a relatively large number of documents. Table 4.1 summarises the number of papers found per search string:

Table 4.1 Number of papers by search string

	Academic journals
Search String 1	504
Search String 2	63
Search String 3	30
Search String 4	30
Search String 5	19
Search String 6	5
Total	651

The total number of papers identified in these search strings are 651. The next step relates to the selection of papers described in the methodology (Table 4.2.). Before applying the exclusion criteria by reading titles and abstracts, it is important to remove all non-academic documents and duplications. The search engine B-ON allows limiting results to peer reviewed documents. Nonetheless, some of the results (27) were excluded due to a misclassification on the database. Subsequently, all the duplications (230) were removed by the software Mendeley (v. 1.18).

As such, the number of academic papers without duplications is 394. The exclusion criteria (Table 3.3) were applied to this set of papers using successive ‘subtractions’. As can be seen, the most important reason for exclusion is related to criterion 2, *i.e.*, studies that use the keywords as residual issues or cover other areas than accounting and finance. The total number of papers resulting from the application of the 5 criteria defined in table 3.3. is 20. The final list of papers to review systematically is 19 since an additional paper was excluded based on the inclusion criteria defined in section 3.2.4.3

Table 4.2 Selection of papers process

Documents from all sources	651
Other sources than academic papers	-27
Academic papers	624
Duplications	-230
Academic papers after duplication removal	394
Papers excluded based on criterion 1	-37
Papers excluded based on criterion 2	-214
Papers related to my research	143
Papers excluded based on criterion 3.1	-38
Papers excluded based on criterion 3.2	-45
Papers excluded based on criterion 3.3	-30
Papers included in my refined scope	20
Papers excluded based on reading the full text	-1
Papers selected based on the methodology	19
Final sample of papers for the systematic review	19

4.1.2 The sample papers: Authors, Year and Journal

Table 4.3 identifies each of the 19 academic papers included in the systematic review. Appendix I presents a summary of those papers. That summary contains for each paper, its motivation, the methodology employed, the classification between empirical or non-empirical, the data used, the sample location and the main findings.

Table 4.3 List of papers included in the systematic review

1.	Adams, Hayunga, and Rasmussen (2017)
2.	Akhigbe and Madura (2008)
3.	Albring, Huang, Pereira, and Xu (2013)
4.	Bardos and Mishra (2014)
5.	Chen, (2016)
6.	Cox and Weirich (2002)
7.	Desai, Krishnamurthy, and Venkataraman (2006)
8.	Drake, Myers, Scholz, and Sharp (2015)
9.	E. Boyd, Hibbert, and Pavlova (2014)
10.	Gleason, Jenkins, and Johnson (2008)
11.	Gondhalekar, Joshi, & McKendall (2012)
12.	Graham, Li, and Qiu (2008)
13.	Hribar and Jenkins (2004)
14.	Karpoff, Lee, and Martin (2008)
15.	Kravet and Shevlin (2010)
16.	Liu, Rowe, and Wang (2012)
17.	Palmrose, Richardson, and Scholz (2004)
18.	Park and Wu (2009)
19.	Salavei (2010)

Figure 4.1 shows the number of papers per year of publication. As can be seen, the papers included in the final sample were published in academic journals from 2002 to 2017 and, excluding the year of 2008, most of the years record 1 or 2 papers. In addition, this evidence suggest that financial restatement continue to be a relevant topic in the accounting and finance domain.

Figure 4.1 *The age profile of the papers*

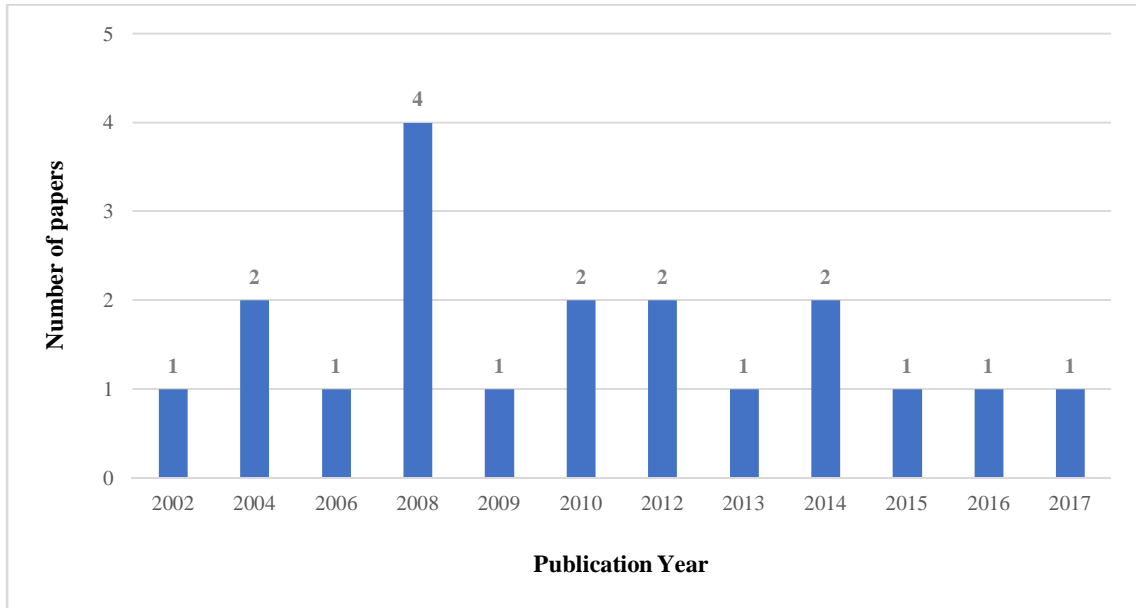


Table 4.4 matched each of the 19 papers in the final list with the identification of the academic journals where the paper was published. In addition, it presents the projected quality grading according to SCImago Journal and Country Ranking.⁶ This ranking expresses the average number of weighted citations received in the selected year by the papers published in the selected journal in the three previous years. Since the selected papers were published from 2002 to present, table 4.4. displays the ranking of the journals from 2010 until 2016. The quality assessment of the journals suggest that financial restatements is topic of interest in important accounting and finance journals and some of the sample papers were published in top journals.

⁶ SCImago, (n.d.). SJR ó SCImago Journal & Country Rank [Portal]. Retrieved 02/05/2018, from <http://www.scimagojr.com>.

Table 4.4 Distribution of studies by journal and respective ranking

Journal Title	Nr. of papers	Journal Ranking							
		SCImago Journal and Country Rank							Average Value 2010-2016
		2010	2011	2012	2013	2014	2015	2016	
Accounting Review	2	4,545	3,873	3,435	5,171	4,560	4,534	3,571	4,241
Advances in Financial Economics	1	0,146	0,144	0,151	0,111	0,201	0,113	0,101	0,138
Applied Financial Economics	2	0,344	0,362	0,443	0,286	0,292	0,252	0,314	0,328
Financial Review	1	0,166	0,452	0,217	0,955	0,360	0,524	1,414	0,584
Journal of Accounting and Economics	1	6,816	5,238	6,784	7,588	5,636	7,258	7,662	6,712
Journal of Accounting and Finance	1	-	-	-	-	-	-	-	-
Journal of Accounting and Public Policy	1	0,761	0,738	0,925	1,157	0,836	1,171	1,530	1,017
Journal of Accounting, Auditing and Finance	2	1,052	0,729	0,483	0,663	1,155	0,560	0,581	0,746
Journal of Business Finance and Accounting	1	0,636	0,646	1,153	1,047	1,232	0,687	1,067	0,924
Journal of Financial and Quantitative Analysis	1	3,937	4,859	5,646	5,111	4,026	3,222	5,099	4,557
Journal of Financial Economics	1	12,069	11,238	13,493	12,088	12,911	10,836	13,218	12,265
Managerial Auditing Journal	1	0,315	0,261	0,280	0,319	0,351	0,385	0,422	0,333
Managerial Finance	1	0,176	0,106	0,117	0,136	0,102	0,105	0,122	0,123
Review of Accounting Studies	3	2,927	2,614	2,037	2,326	2,306	2,145	2,867	2,460
Total	19								

4.2 Report of the findings

The careful reading of the final 19 papers reveals that the impact of restatements on financial markets is significant and negative. The magnitude of the impact depends on several issues that are discussed in this section.

Sections 4.2.1 and 4.2.2 reviews the papers in respect of the impact on the stock value of a company ó firstly, in the “short term” 4.2.1 (1-6) and then in the “long run” 4.2.2. Section 4.2.3 (1-4) reports the effect of restatement activity on the cost of capital, both in terms of internal cost (equity) and external cost (debt). Section 4.2.4 (1-3) documents the relationship between restatements and short-selling. The fifth section 4.2.5 reports the impact on restating firms’ reputation. Section 4.2.6 evaluates the evidence of intra-industry effects (peer effect) regarding restatements.

Findings are presented in a thematic approach emphasising the most relevant issues in the connection between financial restatements and financial markets. The reading of these findings can be supplemented with the Appendix I, which provides for each of the 19 papers the motivation, the methodology employed, the classification between empirical or non-empirical, the data used, the sample location and the main findings.

4.2.1 Stock Market Reaction

The sections 4.2.1 and 4.2.2 reviews all the papers addressing the impact of financial restatements on the value of the event-companies. This impact is usually assessed using the concept of Abnormal Returns (AR). There are several techniques to compute abnormal returns (e.g., Cumulative Abnormal Returns, Buy and Hold Abnormal Returns, Calendar Time approaches, etc). However, most of the papers analysed use the Cumulative Abnormal Returns (CAR) to test for abnormal performance.

The AR are calculated as the difference between the realised return and the expected return, within the period of the event window. The different techniques mentioned above are used to estimate the expected return since there is no definitive answer to produce the perfect estimate. Using the CAR approach, daily AR are then added to obtain the CAR of a specific window. The period of an event window related to the number of days around the event-date, which is defined as day zero. Therefore, a three-day event window around a restatement disclosure includes the prior day (-1), the day (0), and the subsequent day (1) to the announcement. This period is represented in square brackets [-1; 1] and the abnormal performance is verified when it is statistically significant.

Since these research papers analyse different time windows, investigate different reasons for the restatement and distinguishes from who starts the restatement, the report of the findings is divided into different topics.

4.2.1.1 Short-term

The papers that investigate the short-term impact of a financial restatement show an average negative impact in the days surrounding the disclosure. Moreover, there is some evidence of negative abnormal reaction before the disclosure date. This suggests that financial restatements represent a clear case of bad news to investors and that there is some anticipation of these news.

Palmrose, Richardson, and Scholz (2004) use a sample of 403 financial restatements issued between 1995 and 1999, and report an average negative stock price reaction of

9.2% in a two day event window [0; 1]. Hribar and Jenkins (2004) find similar results for a sample compiled by GAO with 292 restatements between 1 January 1997 and 30 June 2002. The decline in the stock value begins 25 days before the announcement, documenting an average loss of 3% during 17 days [-20 ; -3], while on a five day window [-2; 2] around the disclosure the loss is approximately 9%. After the announcement [0; 60], returns remain relatively stable and no abnormal performance is reported. This result suggest that the market do not under or overreact to the announcement of this bad news event.

Drake, Myers, Scholz, and Sharp (2015) find an average reduction in the stock value of 1.3% on a two day event window [0; 1]. Using several event windows, Gleason, Jenkins, and Johnson, (2008) document an average negative market reaction of 4.6% [-10; -2], 19.8% [-1; 1], 2.1% [2; 10] and 10,3% [2; 60]. Akhigbe and Madura (2008) use a sample comprised only of earning restatements⁷ and reports negative abnormal performance of 3.35% around the announcement date [-1, +1], and 2.77% immediately before the disclosure date [-11,-2]. The evidence of negative abnormal reaction before the disclosure of the restatement raises suspicions about possible information leaks (e.g. Akhigbe & Madura, 2008; Gleason et al., 2008; Hribar and Jenkins, 2004).

Gondhalekar, Joshi, & McKendall (2012) extend the previous research by evaluating the market reaction to restatement disclosures over a different time period. In particular, they use data from the GAO database but for the period between 2002 and 2006. Gondhalekar et al. (2012) find an average negative stock price reaction of 1.58% [-1; 1] and 1.44% [0; 1]. These results contrast with those reported by Palmrose et al. (2004). However, Gondhalekar et al. (2012) underline that outliers do not influence their findings since a statistically significant percentage of enterprises in the sample display negative abnormal returns in the event-periods (60%).

4.2.1.2 Short-run market reaction according to the restatement cause

Using a different approach, Salavei (2010) explores the impact of financial restatements on stock price according to each item restated. Using a sample of 919 restating companies between 1 January 1997 and 30 June 2002, the author submits that the

⁷ Earning restatements ó revenue or expense related.

negative reaction is stronger in the case of restatements related to causes that are described as “easy-to-estimate”⁸ items and which involve less estimation. On the contrary, the negative market reaction is weaker if the item restated is a “difficult-to-estimate”⁹ item. The author also takes into consideration the intentional and unintentional aspect of a restatement and interprets the fact of a company being sued as a proxy for fraud. Using an event window of 3 days centred around the restatement date, Salavei (2010) finds a more negative market reaction when there is litigation (without litigation) for easy-to-estimate items with a mean CAR of 13.02% (2.61%) and difficult-to estimate items with a mean CAR of 12.04% (2.88%).

In a parallel study, Palmrose et al. (2004) finds evidence that restatements affecting multiple items and which review previously reported earnings are associated with more negative market reactions and that restating companies have reduced prospects. Similarly, Gondhalekar et al. (2012) finds that revenue and cost/expense issues are the most common causes for restatements in their sample firms (48% and 22% respectively) and that the 3-day negative abnormal reaction is 1.31% and 1.49% respectively.

4.2.1.3 Short-run market reaction: REITs vs non-REITs

In a more recent study, Adams, Hayunga, and Rasmussen, (2017) estimate the stock market reaction to restatements by Real Estate Investment Trusts (REITs) between 2000 and 2011 and compare the results with those for non-REITs. The authors claim that this is an important test as REIT's are more easily scrutinised and more transparent than non-REITs, and thus less exposed to information asymmetry and agency costs between managers and shareholders. Adams et al. (2017) find a less negative market reaction to REITs' restatements (average negative CAR of 0.63%) than non-REITs (average negative CAR of 1.58%) over the [-1; 1] event window. Yet, further analysis shows that restating REITs with higher leverage and Book-to-market ratios experience a more negative market reaction 6.19% and 2.19%, respectively.

4.2.1.4 Short-run market reaction: the issue of fraud

Cox and Weirich (2002) highlights the impact of fraud not only in the profession of accountants but in society in general and point out that one of the reasons for fraud is

⁸ Revenue, cost and expense-related items.

⁹ Restructuring, securities related, Mergers and Acquisitions, and in-progress research and development.

the pressure on managers and their attempt to beat the expectations of analysts. These authors examine a sample of 27 companies that committed fraud in the reporting of their financial statements between 1992 e 1999. This paper finds that shareholders of these firms lost 33 billion dollars during the event window around restatement [-1; 0] providing anecdotal evidence that firms involved in fraudulent reporting suffer a strong penalization in their value.

In a similar vein, Palmrose, Richardson, and Scholz (2004) document an average negative CAR of 20% [0; 1] for fraudulent cases, which contrasts with an average negative CAR of 6% [0; 1] for non-fraudulent restatements. The authors argue that this result is consistent with the hypothesis that fraud increases perceived risk for investors and consequently affect company's prospects. Chapter 2 of this dissertation identifies a paper that distinguishes between errors and irregularities (Hennes et al., 2008). These authors comment that the GAO database does not have sufficient data about fraud and the results found by Palmrose et al. (2004), which used the GAO database sample, could be different if a different method was used to identify fraud. Nonetheless, while defining their method to identify fraud, Palmrose et al. (2004) did underline that their fraud classification (which is based on firm's disclosure of fraud and enforcement actions by SEC) could produce biased result. First, because when companies find the need of a restatement, they issue a press release but may not mention that intentional misreporting is the reason, and second, because investigations carried by SEC could start pre or post announcement, and this timing (earlier or later) could bias the results.

4.2.1.5 Short-run market reaction: who initiates the restatement?

Palmrose et al. (2004) show that the abnormal returns in the three day window around the disclosure of a financial restatement depends on who initiates the restatement. The authors conjecture that restatements initiated externally can lead to more negative returns due to weak internal controls and management incompetence. Results show a negative abnormal reaction of 18% when the auditors trigger restatements, 13% when restatements are initiated by the company and only 4% when the SEC begins the process. In a related paper, Hribar and Jenkins (2004) also find negative and statistically significant abnormal returns for auditor-initiated (14.8%), and company-initiated (7.1%) restatements over the [-2; 2] windows. However, they find no significant abnormal

reaction when the SEC-initiates the restatement.

More recently, Gondhalekar et al. (2012) provide a possible explanation for the above scenario. During the year leading up to the disclosure, the CAR is negative regardless of who initiates the restatement. In the post-restatement period, the results indicate that the market response, in a three-day event window $[-1; 1]$, is negative when the company (2.11%) or the auditor and the company (2.01%) prompt the restatement, but not different from zero if the SEC initiates the process. The justification given by these authors is that when SEC identifies an irregularity, the company rectifies the problem without fussing not letting the matter escalate.

4.2.1.6 Short-run market reaction: impact on risk

Previous studies show that the magnitude of the short-term negative abnormal performance is particularly pronounced when the restatement is initiated by the auditors or when there is a fraudulent behaviour (Palmrose et al., 2004). In the same train of thought, Hribar and Jenkins (2004) find evidence that analysts' forecasts one year ahead, are revised downward more sharply for event-firms with high growth in the past. Kravet and Shevlin (2010) justify the negative reaction in the stock price due to an increase in the risk component related to managers' discretionary actions (such as accruals) and also by enterprise characteristics (total assets, cash flow operations and sales).

4.2.2 Long-term market reaction to restatements

The long-term market impact of a financial restatement was also explored in some of the papers in the final list of this systematic review. For instance, Gondhalekar et al. (2012) fail to find abnormal reaction in the one-year following the announcement. However, this paper reports significant negative abnormal returns of 7.34%, 7.36%, 5.84% and 2.26% respectively in the four years following the disclosure. Gondhalekar et al. (2012) also find negative abnormal performance in the year prior the announcement (9.6%). This result is explained by the possible poor performance of the company during the year before the disclosure, or to a potential market anticipation of the restatement. Concerning the period following the event, the values denote a growing market penalty by the year 4 (CAR of 21.86%).

Gondhalekar et al. (2012) also investigates whether the long-term impact of a financial restatement depends on the frequency that the company restates. The evidence suggests that, over the long run, the market reacts less negatively when a company is a repeat offender. Using cross-sectional regressions to, the long-term abnormal returns post-announcement show evidence that the market reaction is increasingly less negative the more frequently a company restates. The authors are unable to find a plausible explanation for this result and leave this as an open question for future research. However, their logistic regression approach uncovers some factors that influence the odds that a company's restatement activity will re-occur compared to being a one-time offender. Factors such as size (an increase of 1% increases the odds to 17%), the listing Exchange of the company (in Nasdaq the odds are 51%), and a negative market reaction around the announcement of the restatement (odds of 44%).

Gondhalekar et al. (2012) shows that company's size explains both short-term and long-term reaction to a financial restatement. However, while the firm size shows that the bigger the firm, the more unfavourable is the market reaction in the long run, the short term indicates the inverse, suggesting that an initial under-reaction is corrected overtime. But, the same regressions *indicate that the long-term post-announcement market reaction is inversely related to the market reaction at the time of the announcement of restatements.* This result does not allow one to conclude that there is consistency about any *over or under-estimation reaction by the market in response to financial restatement.*

4.2.3 Cost of Capital

4.2.3.1 Cost of equity

Hribar and Jenkins, (2004) use analyst forecast revisions following an accounting restatement to account for the effect of the restatement on expected future cash flows. Applying three different estimation methods, and depending on the model used, the authors estimate an average increase in the cost of capital that fluctuates between 7% e 19% during the month preceding the restatement. The same authors confirm that the capital upturns are more pronounced in the case of restatements which are auditor initiated (13.7%) than by the company (4.8%) or the SEC (1.8%). Firm's leverage level is also seen as a factor contributing to increases in the cost of equity (4.2%). One of the

interpretations for these results is that investors are more concerned about a high level of debt and become alarmed when the auditor initiates the restatement, in the sense that it causes an increase of uncertainty and concern about the ability and the integrity of the company management.

4.2.3.2 Cost of equity, litigation and risk price

Bardos and Mishra (2014) augment the work of Hribar and Jenkins (2004) by including the effect of litigation in the cost of equity. To estimate the cost of capital, the authors use analyst earnings forecast and current prices in a time frame of 6 months [-3; 3]. In addition, they use four different models of implied cost of capital, claiming that these models make it possible to distinguish between the effects of cash-flow and cost of capital. The results show that 67% of the sample firms suffer an increase in the cost of equity. However, of the restating firms that went through a class action, 83% of those suffer an increase in the cost of capital for the company. This increase is greater in cases of actual indictment.

Investors evaluate information risk according to the quality and quantity of information available that influence their decisions. Kravet and Shevlin (2010) studies the relationship between restatements and the cost of information risks. Specifically, they investigate if the discretionary risk component associated with the decision-making of managers in accounting policies increases after the restatements, and the effect of this on the cost of capital. They argue that the evaluation method for the cost of equity used by Hribar and Jenkins, (2004) may be biased on the part of analysts' forecasts. To conduct the study, they examine a time horizon of 6 years [-3; 3] using the quality of accruals and the use of accruals by managers to determine the information risk and the discretionary information risk respectively. The authors find evidence that the cost of information risk increases after the issuing of a restatement, and which results in an average increase of 0.86% to capital cost. However, they submit that the effect of an increase in cost of risk fades over the three years following the disclosure.

4.2.3.3 Cost of Debt

According to the Federal Reserve System between 1996 and 2006, the total bank financing reached a value of \$780 billion, while the issue of equities has represented

only \$2 billion. Given these differences, it is important to understand how the cost and structure of private funding changes with restatements. Graham, Li, and Qiu (2008) assess the impact of the restatements on bank financing as well as the effect on non-monetary items. They compile a sample of 237 restatement firms with 2,541 loans, of which 1,568 started *before* and 883 start *after* restatements and use the period between 1989 and 2004. The results show that financial restatements impact on post-event banking agreement in terms of:

- A higher spread: the penalty is higher for companies that issue restatements due to fraud with an increase of 68.9% (the increase for non-fraudulent restatements is 42.6%);
- lower maturity: 17.1% (7.7 months);
- increase in the probability of a loan insurance by 8.6%;
- increase in covenant restrictions from 6.9 to 7.6;
- decrease in the number of lenders: the number of lenders in a post-restatement loan decreases by an average of 6.5, compared with 8.5 before the restatement. This suggests that the perception of risk increases (Hribar and Jenkins, 2004; Kravet and Shevlin, 2010; Palmrose et al., 2004), and that the resulting concentration of lenders allows better monitoring of borrowers.

Park and Wu (2009) evaluate the cost of the debt using a different methodology. These authors argue that the results of Graham et al. (2008) may include other factors that are not directly related with the restatements, due to the *timeframe* between banking contracts. Through the estimation of abnormal loan returns, they find evidence that the loan market reacts negatively by increasing the spread. Moreover, this evidence is more pronounced when the restatement is started by the SEC or by the auditor. Graham et al. (2008) do not find a statistically significant result regarding the *prompters* of restatements. The results of Park and Wu (2009) confirm an increase in the bid-ask spread in the loan market on the three days around the event date (2.17% in day -1, 1.82% in the event day, and 1.87% in the day +1). A further analysis provides evidence that restatements related information arrives more quickly to the secondary market, which only later, is absorbed by the stock market. The authors justify this result due to banks' privileged access to the financial information of companies.

In a more recent study, Chen (2016) supports the results of both earlier studies, pointing

out that the privileged access of banks to their clients' information causes a higher spread (17.6%) and tight restrictions on loans, even before the issuance of the restatement. For loans "after disclosure" the spread increases about 32.6%. The results lead the authors to conclude that banks' reactions to the information tend to be incomplete since there are further spread adjustments after the announcement of the restatement. The authors support this view because, although the spread increases, they do not find evidence of tighter non-pricing terms.

4.2.3.4 Restatements and firm growth

In the sequel of the results presented by Graham et al. (2008), Kravet and Shevlin (2010), and Hribar and Jenkins (2004), a study conducted by Albring, Huang, Pereira, and Xu (2013), evaluates the impact of financial restatements in the company growth. Using the method developed by Hennes et al. (2008) to distinguish restatements due to error or fraud, the authors analyse the relationship between companies that issue restatements and their internal and external growth. Where a restating company has its growth supported by external funding, these costs are adversely affected by 7.8%. However, where fraud is the origin of the restatement the cost increase is 15.8%. These results incite shareholder value destruction to the extent that investment opportunities may be limited due to the increase in the cost of external funds.

4.2.4 Short selling

Short selling is a trading strategy used to profit from the expectation that the value of a stock will fall in the future. Thus, it is expected by "academic" researchers that bad news events with significant negative impact in the value of company shares, such as restatements, may be related to short selling activity. This section reviews 3 papers that addresses issues related to short seller's behaviour in response to restatements: Desai, Krishnamurthy, and Venkataraman (2006); Drake, Myers, Scholz, and Sharp (2015); E. Boyd, Marie Hibbert, and Pavlova (2014).

4.2.4.1 Short selling around restatements

Desai et al. (2006) find evidence that short-sellers accumulate investment positions in restating firms long before an announcement by using a sample of restating firms and a

control sample. For the event-firms, the average level of short selling eighteen months prior to the event is 2.18%, 2.74% in the month following the event, and 2% eighteen months later. These results provide evidence that short-sellers unwind their positions in the post-announcement period, *i.e.*, when the price declines. For the control sample firms, the paper presents stable figures around 1.6% in the period under review. Consistent with this evidence, a subsequent study performed by Drake et al. (2015) reports relatively high levels of short selling in the month before the announcement of the restatement, when compared with the levels of short-selling of companies which are not involved in any restatement activity.

4.2.4.2 Short selling and Accruals

Palmrose et al. (2004) justify the downward revision of earnings reported in earlier periods by the use of accruals. Desai et al. (2006) contribute to this discussion by reporting a relationship between the high level of short selling and the low performance of these companies (often with a high rate of delisting). These results lead the authors to raise the hypothesis that short sellers are attentive and capable of identifying questionable accounting practices of restating firms, *i.e.*, suggesting that such investors are able to anticipate the restatements.

Drake et al. (2015) also suggest that short sellers are particularly interested in companies issuing restatements to correct earnings previously reported and small companies that have weaker information environments, *i.e.*, weaker financial management. High levels of short selling are more evident in companies that experience stronger negative returns in the 40 post-event days. High levels of short selling in the pre-event period is also reported and is explained by the sophistication of short selling traders that seem to be more vigilant and to follow closely companies where the quality of reporting accounts is weak. In this way, unlike Desai et al. (2006), the authors argue that there is a reaction rather than an anticipation of restatements by short-sellers.

Given the legal requirements after the discovery of a mistake in a financial statement, the SEC has set a deadline of 4 days for the issuing of the restatement. During this period, the managers are forbidden to disclose information, suggesting that traders' anticipation of the financial restatements may be related to information leakage. These

doubts about information leakage are also shared by Akhigbe and Madura (2008), Gleason et al. (2008) and Hribar and Jenkins (2004). Drake et al. (2015) also argue that short sellers can benefit from any initially incomplete or “staggered” market reaction as described earlier.

4.2.4.3 Naked short sales and restatements

According to SEC, *“in a naked short sale, the seller does not borrow or arrange to borrow the securities in time to make delivery to the buyer within the standard three-day settlement period. As a result, the seller fails to deliver securities to the buyer when delivery is due; this is known as a failure to deliver”* E. Boyd et al. (2014) use the level of abnormal fails-to-deliver as a proxy for naked short selling and finds a significant increase in short selling activity both before and after the issue of a restatement. The increased short selling activity peaks on the 7th and 6th day before, and the two days following the disclosure. In line with the arguments of Desai et al. (2006), the authors claim that the earlier first increase is related to the certainty that the short-sellers can anticipate restatements, and after disclosure the second peak moment is associated with the reaction of traders who may be less informed. However, this possible anticipation of restatements is documented only in respect of enterprises with high levels of institutional ownership.

4.2.5 Reputation

Karpoff, Lee, and Martin (2008) investigate and quantify an average value of \$23.5 million for fines imposed by the U.S. legal system for firms “caught cooking the books” vis-à-vis financial misreporting between 1978 and 2002. However, these authors support the view that the cost imposed by the market is much higher because of the cost which can be attributed to loss of reputation. In their words, *“for each dollar that a firm misleadingly inflates its market value, on average, it loses this dollar when its misconduct is revealed, plus an additional \$3.08. Of this additional loss, \$0.36 is due to expected legal penalties and \$2.71 is due to lost reputation. In firms that survive the enforcement process, lost reputation is even greater at \$3.83”*.

The authors estimate that a company could lose up to 38% of its market value after the discovery of its financial misreporting. A more detailed analysis reveals that 24.5% of this loss is related to the adjustment of a new accounting reality, 8.8% is related to potential litigation from the SEC and shareholders, and the remaining 66,7% are due to the loss of reputation with their customers and suppliers.

4.2.6 Financial restatements and industry effect

Gleason et al. (2008) find evidence that accounting restatements that have negative impacts on market value of event-firms also induce share price declines among non-restating firms in the same industry (i.e. peer firms). The authors explain that this contagion effect is not related to revisions on analysts' forecasts but a lower financial reporting quality (high accounting accruals and low operating cash-flows). They also find an incremental penalty for the stock value of peer firms with similar accounting quality for those cases where the peer firms have the same external auditor as restating firms.

Akhigbe and Madura (2008) conduct a similar study to analyse the consequences on the market value of earnings restatements (ER) within a given industry. Examining a sample composed of restatement firms and a control sample of industry rivals, the authors find evidence that restatements which review previously recognised gains, cause a contagion effect in the industry. This contagion effect within the industry is documented for earnings restatements that diminishes earnings previously reported as well to earnings restatements that reveal an improvement in previously reported earnings.

Cross-sectional analyses provide evidence that the adverse effects of ER are more prominent for highly concentrated industries and with a higher level of accruals. Regarding contagion effect, restatements issued because of fraud do not produce a significant effect on non-restatement companies, since it is seen as firm-specific. Another finding is that, since the Enron event, the industry responds more negatively to earnings restatements. In addition to these results, Kravet and Shevlin (2010) also provide evidence of an intra-industry information transfer effect in discretionary information risk, as an incremental reason for share decline among non-restating firms.

A subsequent study by Liu et al. (2012) analyses the impact that restatements might have on the assignment of a firm's credit rating, and in particular, the study evaluates the effect that the Enron episode had on the credit rating given to firms in the same industry (oil, gas and energy). The authors find evidence that severe restatementing (effect on net income, pervasiveness, number of years restated and the simultaneous announcement of news) relates to adjustments of credit ratings assigned by Standard & Poor's. Further, firms in the same industry sector as Enron which issued more harsh restatements were more penalized in their credit rating than restating firms in other sectors. Consequently, this result also justifies the presence of a contagion effect for peer companies in the ratings assigned by credit agencies.

CHAPTER 5 - CONCLUSION

5.1 Implications for further research

This systematic review of the literature reveals that Restating Activity in the US is an important issue that impacts on accounting quality and the functioning of financial markets. Research on financial restatements is an important topic in the accounting and finance domain and some of the papers are published in top journals. Several papers connect the financial restatements with other important issues, but there are some open questions that can be explored in further empirical work.

The development of a scoping study was crucial to conclude that most of the published papers addressing financial restatements draws on US data. This is one of the reasons justifying why the systematic review is restricted to US market. However, it is important to understand why these issues are not widely addressed in the European market. One of the reasons may be the availability of a US restatements databases compiled by GAO that is widely used by researchers. Before the GAO database, researchers had to collect and search by hand for restatements announcements on newspapers, which was a long and fastidious job. The Audit Analytics restatements database augment the availability of US data on restatements and contributes to the development of the research in this area. Regrettably, there is no similar systematic database containing European data.

The lack of databases containing financial restatements information for the European market raises several questions that may be explored in further empirical work. IFRS Standards are required for all companies whose securities trade in a regulated market in the 31-member states of the European Union (EU) and the European Economic Area (EEA).¹⁰ One could question if the European regulators are alerted to the quality of financial reporting by publicly listed companies in Europe, or in a different perspective, concerns could be raised regarding the auditing system independency towards his clients. According to the international accounting standard 8 - IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors, *unless it is impracticable to determine the effects of the error, an entity corrects material prior period errors*

¹⁰ <https://www.ifrs.org/use-around-the-world/>

retrospectively by restating the comparative amounts for the prior period(s) presented in which the error occurred. Since IFRS are principle oriented, and more subject to professional judgement, it would be relevant to explore the restating activity in countries using IFRS, such as in Europe.

The systematic review of the literature shows that the short-term impact of a financial restatement in the financial markets is one of the most explored questions. Several papers (e.g., Palmrose et al., 2004; Hribar and Jenkins, 2004; Akhigbe and Madura, 2008; Gondhalekar et al., 2012; Drake et al., 2015) find a significant negative market reaction in the days surrounding the disclosure of a financial restatement. In a more detailed level, the literature suggests that the magnitude of such negative reaction depends on several variables such as the cause or reason for the restatement, if the restatement is easy or difficult to estimate, if the restatement is with or without litigation, if the restatement firm already review previous reported earnings, if there was fraud or who initiates the restatement (e.g., Cox and Weirich, 2002; Palmrose et al., 2004; Kravet and Shevlin, 2010; Salavei, 2010; Gondhalekar et al., 2012). As such, it is important to explore other factors that may impact in this short-term reaction.

Despite the consensus that financial restatements impact negatively on the short-term market value of event-firms, the evidence on the long-term market reaction is scarce and unclear (e.g., Gondhalekar et al., 2010). As such, this seems to represent an important research avenue to explore and clarify if the market fully and immediately assimilates the content of a financial restatement disclosure. Alternatively, the market may underreact to this bad news as in the case of other extreme accounting events such as going-concern opinions (e.g., Kausar, Taffler, and Tan, 2009). Gondhalekar et al. (2012) highlights that there is no consistency about any *öover or under-estimation reaction by the market in response to financial restatementö*. The behavioural finance approach with its limits to arbitrage and cognitive biases may have an important role in this research design.

Other important finding of this systematic review is that the market is able to, somehow, anticipate the financial restatement disclosure. In fact, some papers find significant negative abnormal returns in the pre-event period (e.g. Hribar and Jenkins, 2004; Gleason et al., 2008) and that the short-selling activity also increases in the pre-event

date (e.g., Desai et al., 2006; Drake et al., 2015). Therefore, it is important to investigate the behaviour of other sophisticated agents that have the ability to impact in the value of firms like the financial analysts. One of the questions that can be explored in future empirical is whether financial analysts adjust their recommendations and their price targets in the months before the restatement announcement. In addition, analyst behaviour may contribute to augment the list of factors that impact on the short-term market reaction to the financial restatements. In particular, it seems important to test if the short-term market reaction depends on analyst opinion at the disclosure date.

The systematic review of the literature also uncovers that financial restatements have important consequences on the event-firm besides the loss in their market value. The literature shows that, following a financial restatement disclosure, the cost of capital increases, the cost of debt increases, the reputation of the company decreases and the firms operating in the same industry are negatively affected by this bad news event (e.g., Hribar and Jenkins, 2004; Akhigbe and Madura, 2008; Graham et al., 2008; Karpoff et al., 2008; Park and Wu, 2009; Bardos and Mishra, 2014; Chen, 2016). Therefore, it seems to be important to understand whether financial analysts react following the announcement date and if they continue to be interested in following such companies. This can be done by testing if the differences in their recommendations and price targets in the pre and post-event are significant and if the percentage of analysts that drop the coverage of those companies is statistically significant.

5.2 Limitations

In the author's opinion, the main limitations of the dissertation were the keywords choice and the definition of exclusion criteria. Although rationally supported and asserted by the consultation group, there is always an echo of the author's interest areas and motivations in the definition of the exclusion criteria.

5.3 Methodology appraisal

The systematic review of the literature revealed as an important tool to avoid some weaknesses of the traditional literature review. The author became familiarised with the process, and in future uses of this methodology, although it is a continuous learning process, the increase in the learning curve of experience would be useful to reduce the time spent during some stages.

Regarding the main purposes of this methodology, defined in chapter 3, it is indeed transparent and replicable by others. However, the process developed by the author is not free of criticism for several reasons. First, other researchers could define different keywords or argue that some are missing. Second, the reading of the title and abstract to select papers, may exclude some papers that other researches could include. Third, it can be argued that studies not published could enhance and give different perspectives to the results found.

Overall, the author believes that the methodology used, benefited the dissertation and reduced the level of possible criticism if compared to a traditional review process.

LIST OF REFERENCES

- Abbott, L. J., Parker, S., & Presley, T. J. (2012). Female Board Presence and the Likelihood of Financial Restatement. *Accounting Horizons*, 26(4), 607-629. Retrieved from <http://10.0.9.4/acch-50249>
- Adams, J. C., Hayunga, D. K., & Rasmussen, S. J. (2017). The Restating of Financial Statements by REITs. *Journal of Accounting, Auditing & Finance*, 32(3), 350-371. Retrieved from <http://10.0.4.153/0148558X15607748>
- Akhigbe, A., & Madura, J. (2008). Industry Signals Relayed by Corporate Earnings Restatements. *Financial Review*, 43(4), 569-589. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=heh&AN=34679786&site=eds-live>
- Albring, S. M., Huang, S. X., Pereira, R., & Xu, X. (2013). The effects of accounting restatements on firm growth. *Journal of Accounting and Public Policy*, 32(5), 357-376. <https://doi.org/10.1016/j.jaccpubpol.2013.06.005>
- Baker, C. R. (2017). The Influence of Accounting Theory on the FASB Conceptual Framework. *Accounting Historians Journal*, 44(2), 109-124. <https://doi.org/10.2308/aahj-10555>
- Bardos, K. S., & Mishra, D. (2014). Financial restatements, litigation and implied cost of equity. *Applied Financial Economics*, 24(1), 51-67. <https://doi.org/10.1080/09603107.2013.864033>
- Bradshaw, M. T., Richardson, S. A., & Sloan, R. G. (2001). Do analysts and auditors use information in accruals? *Journal of Accounting Research*, 39(1), 45-74. <https://doi.org/10.1111/1475-679X.00003>
- Carver, B. T. (2014). The retention of directors on the audit committee following an accounting restatement. *Journal of Accounting and Public Policy*, 33(1), 51-68. <https://doi.org/10.1016/j.jaccpubpol.2013.10.001>

- Chen, K. Y., Elder, R. J., & Hung, S. (2014). Do post-restatement firms care about financial credibility? Evidence from the pre- and post-SOX eras. *Journal of Accounting and Public Policy*, 33(2), 1076126. <https://doi.org/10.1016/j.jaccpubpol.2013.12.002>
- Chen, P.-C. (2016). Banksø Acquisition of Private Information about Financial Misreporting. *Accounting Review*, 91(3), 8356857.
- Chung, J., & McCracken, S. (2014). Understanding the Restatement Process. *Accounting Perspectives*, 13(4), 2536281. Retrieved from <http://10.0.4.87/1911-3838.12036>
- Coetsee, D. (2010). The role of accounting theory in the development of accounting principles. *Meditari Accountancy Research*, 18(1), 1616. <https://doi.org/10.1108/10222529201000001>
- Cox, R. a. K., & Weirich, T. R. (2002). The stock market reaction to fraudulent financial reporting. *Managerial Auditing Journal*, 17(7), 3746382. <https://doi.org/10.1108/02686900210437471>
- Dechow, P. M., & Dichev, I. D. (2002). The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors. *Accounting Review*, 77(4), 35659. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=edb&AN=9092594&site=eds-live>
- Denyer, D., & Tranfield, D. (2009). Producing a systematic review. In *The Sage handbook of organizational research methods*. (pp. 6716689). Thousand Oaks, CA: Sage Publications Ltd.
- Desai, H. (2006). The reputational penalty for aggressive accounting: Earnings restatements and management turnover. *ACCOUNTING REVIEW*, 81(1), 836112. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=edswss&AN=000235173700004&site=eds-live>

- Desai, H., Krishnamurthy, S., & Venkataraman, K. (2006). Do Short Sellers Target Firms with Poor Earnings Quality? Evidence from Earnings Restatements. *Review of Accounting Studies*, 11(1), 71690. Retrieved from <http://10.0.3.239/s11142-006-6396-x>
- Drake, M. S., Myers, L. A., Scholz, S., & Sharp, N. Y. (2015). Short Selling Around Restatement Announcements. *Journal of Accounting, Auditing and Finance*, 30(2), 2186245. <https://doi.org/10.1177/0148558X14560899>
- E. Boyd, N., Marie Hibbert, A., & Pavlova, I. (2014). Accounting irregularities and failure to deliver. *Managerial Finance*, 40(8), 7706786. <https://doi.org/10.1108/MF-08-2013-0219>
- E. Boyd, N., Marie Hibbert, A., Pavlova, I., Marie Hibbert, A., & E. Boyd, N. (2014). Accounting irregularities and failure to deliver. *Managerial Finance*, 40(8), 7706786. <https://doi.org/10.1108/MF-08-2013-0219>
- Efendi, J., Srivastava, A., & Swanson, E. P. (2007). Why do corporate managers misstate financial statements? The role of option compensation and other factors. *Journal of Financial Economics*, 85(3), 6676708. <https://doi.org/10.1016/j.jfineco.2006.05.009>
- Ettredge, M., Huang, Y., & Zhang, W. (2013). Restatement Disclosures and Management Earnings Forecasts. *Accounting Horizons*, 27(2), 3476369. Retrieved from <http://10.0.9.4/acch-50414>
- Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25(2), 3836417.
- Files, R., Swanson, E. P., & Tse, S. (2009). Stealth disclosure of accounting restatements. *Accounting Review*, 84(5), 149561520. <https://doi.org/10.2308/accr.2009.84.5.1495>
- Flanagan, D. J., Muse, L. A., & O'Shaughnessy, K. C. (2008). An overview of accounting restatement activity in the United States. *International Journal of Commerce and Management*, 18(4), 3636381. <https://doi.org/10.1108/10569210810921979>

- GAO. (2002). Financial Statement Restatements: Trends, Market Impacts, Regulatory Responses, and Remaining Challenges: GAO-03-138. *GAO Reports*, 2000(October), 16272. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=18198302&site=eds-live>
- GAO. (2006). Financial Restatements: Update of Public Company Trends, Market Impacts, and Regulatory Enforcement Activities: GAO-06-678. *GAO Reports*. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=edb&AN=23605641&site=eds-live>
- Gleason, C. a, Jenkins, N. T., & Johnson, W. B. (2008). The contagion effect of accounting restatements. *Accounting Review*, 83(1), 836110. <https://doi.org/10.2308/accr.2008.83.1.83>
- Gondhalekar, V., Joshi, M., & McKendall, M. (2012). *Short- and Long-Term Share Price Reaction to Announcements of Financial Restatements. Advances in Financial Economics* (Vol. 15). Emerald Group Publishing Ltd. [https://doi.org/10.1108/S1569-3732\(2012\)0000015008](https://doi.org/10.1108/S1569-3732(2012)0000015008)
- Graham, J. R., Li, S., & Qiu, J. (2008). Corporate misreporting and bank loan contracting. *Journal of Financial Economics*, 89, 44661. Retrieved from <http://10.0.3.248/j.jfineco.2007.08.005>
- Guo, J., Huang, P., Zhang, Y., & Zhou, N. (2016). The Effect of Employee Treatment Policies on Internal Control Weaknesses and Financial Restatements. *Accounting Review*, 91(4), 116761194. Retrieved from <http://10.0.9.4/accr-51269>
- Hart, C. (1998). *Doing A Literature Review: Releasing the Social Science Research Imagination*.
- Hee, K. W. (2011). Changes in the predictive ability of earnings around earnings restatements. *Review of Accounting and Finance*, 10(2), 1556175. <https://doi.org/10.1108/14757701111129625>

- Hennes, K. M., Leone, A. J., & Miller, B. P. (2008). The importance of distinguishing errors from irregularities in restatement research: The case of restatements and CEO/CFO turnover. *Accounting Review*, 83(6), 1487-1519. <https://doi.org/10.2308/accr.2008.83.6.1487>
- Hribar, P., & Jenkins, N. T. (2004). The Effect of Accounting Restatements on Earnings Revisions and the Estimated Cost of Capital. *Review of Accounting Studies*, 9(2/3), 337-356. <https://doi.org/10.1023/B:RAST.0000028194.11371.42>
- Hribar, P., Kravet, T., & Wilson, R. (2014). A new measure of accounting quality. *Review of Accounting Studies*, 19(1), 506-538. <https://doi.org/10.1007/s11142-013-9253-8>
- Jacob, R. a., & Madu, C. N. (2009). International financial reporting standards: an indicator of high quality? *International Journal of Quality & Reliability Management*, 26, 712-722. <https://doi.org/10.1108/02656710910975778>
- Jensen, M. C. (2005). Agency Costs of Overvalued Equity. *Financial Management (Wiley-Blackwell)*, 34(1), 5-19. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=heh&AN=17039376&site=eds-live>
- Karpoff, J. M., Lee, D. S., & Martin, G. S. (2008). The cost to firms of cooking the books. *Journal of Financial and Quantitative Analysis*, 43(3), 581-611.
- Kausar, A., Taffler, R. J., & Tan, C. (2009). The going-concern market anomaly. *Journal of Accounting Research*, 47(1), 213-239. <https://doi.org/10.1111/j.1475-679X.2008.00317.x>
- Kim, Y. J., Baik, B., & Cho, S. (2016). Detecting financial misstatements with fraud intention using multi-class cost-sensitive learning. *Expert Systems With Applications*, 62, 32-43. <https://doi.org/10.1016/j.eswa.2016.06.016>
- Kravet, T., & Shevlin, T. (2010). Accounting restatements and information risk. *Review of Accounting Studies*, 15(2), 264-294. <https://doi.org/10.1007/s11142-009-9103-x>

- Lev, B., Ryan, S. G., & Wu, M. (2008). Rewriting earnings history. *Review of Accounting Studies*, 13(4), 419-451. Retrieved from <http://10.0.3.239/s11142-007-9041-4>
- Liu, C. Z., Rowe, B. J., & Wang, Y.-F. (2012). The Impact of Restatements on Credit Ratings and the Enron Industry-Peer Effect. *Journal of Accounting and Finance*, 12(1), 206-30. Retrieved from <http://widgets.ebscohost.com/prod/customerspecific/ns000290/authentication/index.php?url=http%3A%2F%2Fsearch.ebscohost.com%2Flogin.aspx%3Fdirect%3Dtrue%26AuthType%3Dip%2Ccookie%2Cshib%2Cuid%26db%3Dbth%26AN%3D76118043%26lang%3Dpt-br%26site%3Deds-live%26sco>
- Martínez Tapia, R. (1995). Schmalenbach y el Balance Oro en Alemania. *Revista Española de Financiación y Contabilidad*, XXIV(83), 479-6500.
- Palmrose, Z. V., Richardson, V. J., & Scholz, S. (2004). Determinants of market reactions to restatement announcements. *Journal of Accounting and Economics*, 37(1), 59-89. <https://doi.org/10.1016/j.jacceco.2003.06.003>
- Park, J. C., & Wu, Q. (2009). Financial Restatements, Cost of Debt and Information Spillover: Evidence From the Secondary Loan Market. *Journal of Business Finance & Accounting*, 36(9/10), 1117-61147. Retrieved from <http://10.0.4.87/j.1468-5957.2009.02162.x>
- Plumlee, M., & Yohn, T. L. (2010). An analysis of the underlying causes attributed to restatements. *Accounting Horizons*, 24(1), 41-64. <https://doi.org/10.2308/acch.2010.24.1.41>
- Presley, T. J., & Abbott, L. J. (2013). AIA submission: CEO overconfidence and the incidence of financial restatement. *Advances in Accounting*, 29(1), 74-84. <https://doi.org/10.1016/j.adiaac.2013.03.007>

- Putman, R. L., Griffin, R. B., & Kilgore, R. W. (2009). The impact of earnings management on capital markets: ethical consideration of the players. *Journal of Legal, Ethical and Regulatory Issues* VO - 12, (1), 113. Retrieved from <http://widgets.ebscohost.com/prod/customerspecific/ns000290/authentication/index.php?url=http%3A%2F%2Fsearch.ebscohost.com%2Flogin.aspx%3Fdirect%3Dtrue%26AuthType%3Dip%2Ccookie%2Cshib%2Cuid%26db%3Dedsgao%26AN%3Dedsgcl.209407522%26lang%3Dpt-br%26site%3Deds>
- Richardson, S. A., Tuna, A. I., & Wu, M. (2003). Predicting Earnings Management: The Case of Earnings Restatements. *SSRN Electronic Journal*, (October). <https://doi.org/10.2139/ssrn.338681>
- Salavei, K. (2010). Implications of financial statement restatements of different items. *Applied Financial Economics*, 20(11), 8796890. <https://doi.org/10.1080/09603101003689708>
- Sloan, R. G. (1996). Do Stock Prices Fully Reflect Information in Accruals and Cash Flows About Future Earnings? *Accounting Review*, 71(3), 2896315. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=9608042309&site=eds-live>
- Srinivasan, S. (2005). Consequences of Financial Reporting Failure for Outside Directors: Evidence from Accounting Restatements and Audit Committee Members. *Journal of Accounting Research*, 43(2), 2916334. <https://doi.org/10.1111/j.1475-679x.2005.00172.x>
- Tan, C. E. L., & Young, S. M. (2015). An Analysis of "Little rö Restatements. *Accounting Horizons*, 29(3), 6676693. <https://doi.org/10.2308/acch-51104>
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. *British Journal of Management*, 14(3), 2076222. <https://doi.org/10.1111/1467-8551.00375>

- Weili, G., & Sarah, M. (2005). The disclosure of material weaknesses in internal control after the Sarbanes -Oxley Act. *Accounting Horizons*, 19(3), 137-158.
<https://doi.org/10.2308/acch.2005.19.3.137>
- Wilson, W. M. (2008). An empirical analysis of the decline in the information of earnings content restatements following. *Accounting Review*, 83(2), 519-548.
<https://doi.org/10.2308/accr.2008.83.2.519>

Appendix I: Summary of selected papers

	Data	Sample location	Empirical / Non-empirical
Study 1: Adams et al. (2017)	<ul style="list-style-type: none">Sample: 99 Restatements from REITs and 2991 restatements from non-REITs	US	Empirical
	<ul style="list-style-type: none">Period: (2000 ó 2011)		
	<ul style="list-style-type: none">Restatements Database: Data Analytics		
	Methodology: Event Study Methods ó CARs in 3-day event window [-1; +1]		
	Study's motivation: First article to examine financial restatement activity by REITs.		
	Findings: <ul style="list-style-type: none">➤ Low pervasiveness of accounting errors on REIT restatements➤ Market reaction to REITs restatements is less negative when compared with non-REITs		
	Data	Sample location	Empirical / Non-empirical
Study 2: Akhigbe and Madura (2008)	<ul style="list-style-type: none">Sample: 696 Firms' Restating Earnings and 33279 Rivals diversified across 287 different four-digit SIC code industries	US	Empirical
	<ul style="list-style-type: none">Period: 1991 ó 2002		
	<ul style="list-style-type: none">Database: Lexis-Nexis		
	Methodology: Event Study Methods ó ARs in different windows surrounding the event [-11; +11]		
	Study's motivation: To determine whether earnings restatements prompt industry valuation effects.		
	Findings: <ul style="list-style-type: none">➤ Earnings restatements are associated with negative and significant valuation effects of rivals in the corresponding industry.➤ Earnings restatements that have a favourable effect on the firm restating its earnings yield positive and significant valuation effects of rivals in the corresponding industry.		

	Data	Sample location	Empirical / Non-empirical
Study 3: Albring et al. (2013)	<ul style="list-style-type: none">Sample: 1044 restatements and a matched sample with 4176 firm-year observations	US	Empirical
	<ul style="list-style-type: none">Period: Jan 1997 ó Sep 2005		
	<ul style="list-style-type: none">Database: GAO		
	Methodology: Regressions using several firms' characteristics		
	Study's motivation: Impact of restatements on firm growth		
Findings: <ul style="list-style-type: none">➤ Adverse impact of restatement on firm growth, particularly through external financing			
	Data	Sample location	Empirical / Non-empirical
Study 4: Bardos and Mishra (2014)	<ul style="list-style-type: none">Sample: 91 restatements	US	Empirical
	<ul style="list-style-type: none">Period: Jan 1997 ó Jun 2002		
	<ul style="list-style-type: none">Database: GAO		
	Methodology: Four models of implied cost of equity		
	Study's motivation: The effect of financial restatements on the cost of equity vis-à-vis litigation risk		
Findings: <ul style="list-style-type: none">➤ After restatements, the increase in the cost of equity is more pronounced and concentrated in sued firms.			
	Data	Sample location	Empirical / Non-empirical
Study 5: Chen (2016)	<ul style="list-style-type: none">Sample: 431 restatements and 3270 loans	US	Empirical
	<ul style="list-style-type: none">Period: Jan 2000 ó Nov 2013		
	<ul style="list-style-type: none">Database: Audit Analytics		
	Methodology: Multivariate regressions		
	Study's motivation: Banks reaction to misreporting		
Findings: <ul style="list-style-type: none">➤ Superior access to direct and indirect information by banks➤ Banks adjust loan contract terms during the misreporting period			

	Data	Sample location	Empirical / Non-empirical
Study 6: Cox and Weirich (2002)	Sample: 27 firms announcing fraudulent report		
	Period: 1992 ó 1999	US	Empirical
	Database: Wall Street Journal announcements confirmed by SEC		
	Methodology: Event study and OLS regressions		
	Study's motivation: Impact of fraudulent reporting on capital markets		
	Findings: <ul style="list-style-type: none"> ➤ Strong negative market impact in dollar terms around the announcement [0; 1] 		
	Data	Sample location	Empirical / Non-empirical
Study 7: Desai et al. (2006)	<ul style="list-style-type: none"> • Sample: 477 firms' restatements and control sample of same size 	US	Empirical
	<ul style="list-style-type: none"> • Period: Jan 1997 ó Jun 2002 		
	<ul style="list-style-type: none"> • Database: GAO 		
	Methodology: Multivariate regressions		
	Study's motivation: Contribute to a better understanding of the decision process of short sellers.		
	Findings: <ul style="list-style-type: none"> ➤ Short-sellers accumulate positions in restating firms several months in advance of the restatement. ➤ The increase in short interest is larger for firms with high levels of accruals prior to restatement. ➤ Short sellers pay attention to information being conveyed by accruals. 		
	Data	Sample location	Empirical / Non-empirical
Study 8: Drake et al. (2015)	<ul style="list-style-type: none"> • Sample: 740 restatements by 468 firms 	US	Empirical
	<ul style="list-style-type: none"> • Period: Jan 2005 ó Aug 2007 		
	<ul style="list-style-type: none"> • Database: Audit Analytics 		
	Methodology: Event study using abnormal returns; regressions and four-factor model		
	Study's motivation: Understand how sophisticated investors process and respond to restatements		
	Findings: <ul style="list-style-type: none"> ➤ Short-sellers respond but do not anticipate restatements ➤ Short sellers target companies with weaker information environments ➤ Firms with high activity of short selling experience the most negative subsequent abnormal returns over horizons of up to 40 trading days following the restatement disclosure. 		

	Data	Sample location	Empirical / Non-empirical
Study 9: E. Boyd et al. (2014)	<ul style="list-style-type: none"> Sample: 126 restatements by 121 firms Period: Jan 2009 ó Dec 2010 Database: Audit Analytics 	US	Empirical
	Methodology: Event study using Abnormal Failures to Deliver; and cross-sectional regression		
	Study's motivation: Examine the relationship between naked short selling and accounting irregularities that cause a firm to issue a restatement.		
	Findings: <ul style="list-style-type: none"> ➤ Informed traders use the information flow from institutional investors following larger firms to anticipate the accounting restatements and serve as good market monitors of the firm. ➤ More transparent announcements are associated with more abnormal fails. 		
	Data	Sample location	Empirical / Non-empirical
Study 10: Gleason et al. (2008)	<ul style="list-style-type: none"> Sample: 380 restatements and control sample of 22510 peer firms Period: Jan 1997 ó Jun 2002 Database: GAO and Compustat 	US	Empirical
	Methodology: Event study with Abnormal returns and cross-sectional regression		
	Study's motivation: Examine if restatements that adversely affect shareholders wealth, induce share prices declines among peer firms in the same industry.		
	Findings: <ul style="list-style-type: none"> ➤ Evidence of a contagion effect resulting in a share price decline of non-restating firms. ➤ The contagion effect is more pronounced for peer-firms with high industry-adjusted accruals and that use the same external auditor 		

	Data	Sample location	Empirical / Non-empirical
Study 11: Gondhalekar et al. (2012)	<ul style="list-style-type: none"> • Sample: 535 restatements • Period: Jul 2002 ó Sep 3005 • Database: GAO and Compustat 	US	Empirical
	Methodology: Event study and Fama-French model for computing abnormal returns		
	Study's motivation: Examine both short- and long-term share price reaction to restatements		
	Findings:		
	<ul style="list-style-type: none"> ➤ Significantly negative CAR for the tree-day window event, the prior year to restatement and for the for years subsequent to the announcement 		
Study 12: Graham et al. (2008)	<ul style="list-style-type: none"> • Sample: 237 restatement firms with 2541 loans started before restatement and 883 loans initiated after restatement • Restatement Period: Jan 1997 ó Jun 2002 • Loan Period: 1989 - 2004 • Database: GAO and Dealscan 	US	Empirical
	Methodology: Regression analysis		
	Study's motivation: Study the effect of financial restatement on bank loan contracting.		
	Findings:		
	<ul style="list-style-type: none"> ➤ Compared with loans initiated before restatement, loans initiated after restatement have significantly higher spreads, shorter maturities, higher likelihood of being secured, and more covenant restrictions. 		
Study 13: Hribar and Jenkins (2004)	<ul style="list-style-type: none"> • Sample: 292 restatements • Period: Jan 1997 ó Jun 2002 • Database: GAO 	US	Empirical
	Methodology: Event study with Abnormal Returns and Cross-sectional regression analysis		
	Study's motivation: Examines the effect of accounting restatements on a firm's cost of equity capital.		
	Findings:		
	<ul style="list-style-type: none"> ➤ The cost of equity capital average between 7% and 19% in the month immediately following a restatement. 		

	Data	Sample location	Empirical / Non-empirical	
Study 14: Karpoff et al. (2008)	<ul style="list-style-type: none">Sample: 1455 firms' restatements and 585 Enforcement actionsPeriod: 1978 to 2002Database: Lexis-Nexis and SEC	US	Empirical	
	Methodology: Event study with Abnormal Returns and Tobit Regressions			
	Study's motivation: Reputation cost			
	Findings: <ul style="list-style-type: none">➤ Penalties imposed by SEC enforcement actions represent only 8.8% of the estimated cost of 38% for firms caught misreporting.			
	Data	Sample location	Empirical / Non-empirical	
Study 15: Kravet and Shevlin (2010)	<ul style="list-style-type: none">Sample: 299 restatement firmsPeriod: 1997 to 2001Database: GAO	US	Empirical	
	Methodology: Fama and French three-factor model			
	Study's motivation: Relation between financial restatements and the cost of information risk			
	Findings: <ul style="list-style-type: none">➤ The increase on information risk, for restatement firms after a restatement announcement, results in an increase in the estimated cost of capital.➤ There is an information transfer effect for non-restatement firms in the same industry.			

	Data	Sample location	Empirical / Non-empirical
Study 16: Liu et al. (2012)	<ul style="list-style-type: none"> Sample: 487 restatement firms and a match sample with 487 non-restating firms Period: 1997 ó 2005 Restatements Database: Lexis-Nexis, EDGAR, GAO and SEC Credit Ratings Database: Standard & Poor's retrieved from COMPUSTAT 	US	Empirical
	Methodology: Logistic Regressions		
	Study's motivation: Link between restatements and credit risk		
	Findings: <ul style="list-style-type: none"> Restatements' characteristics, such as magnitude, duration and pervasiveness, impact the credit-rating response. Enron industry peer-effect resulting in the attribution of lower credit ratings to firms in the same sector as Enron. 		
	Data	Sample location	Empirical / Non-empirical
Study 17: Palmrose et al. (2004)	<ul style="list-style-type: none"> Sample: 492 restatement firms Period: 1995 ó 1999 Restatements Database: Lexis-Nexis and SEC 	US	Empirical
	Methodology: Event study with abnormal returns and regressions analysis		
	Study's motivation: Determinants of market reaction to restatement announcements		
	Findings: <ul style="list-style-type: none"> Fraud, pervasiveness, and the restatements' prompts are determinant to more negative returns. 		
	Data	Sample location	Empirical / Non-empirical
Study 18: Park and Wu (2009)	<ul style="list-style-type: none"> Sample: 19505 trading observations, 103 restatements and 176 loans Period: Jan 1997 ó Sep 2005 Restatements Database: GAO Loan Trade Database: LPC and DeasScan 	US	Empirical
	Methodology: Event study and multivariate regression models		
	Study's motivation: The effect of financial restatements on the debt market		
	Findings: <ul style="list-style-type: none"> Restatements produce a negative loan market reaction. Restatement information arrives at the secondary market earlier than the equity market. 		

Study 19: Salavei (2010)	Data	Sample location	Empirical / Non-empirical
	<ul style="list-style-type: none">• Sample: 537 restatement firms• Period: Jan 1997 ó Jun 2002• Restatements Database: GAO	US	Empirical
	Methodology: Event study with abnormal returns		
	Study's motivation: Market reaction to financial restatements differentiated by restated items.		
	Findings:		
	<ul style="list-style-type: none">➤ Market reaction is less negative to restatements of difficult-to-estimate items		

Appendix II - Financial Restatement Category Descriptions

Category	Description
Cost or expense	Restatements due to improper accounting for costs or expenses. This category generally includes a company understating or overstating costs or expenses, improperly classifying expenses, or any other number of mistakes or improprieties that led to misreported costs. It also includes improper treatment of expenses related to tax liabilities and tax reserves. In addition, it includes improper treatment of financing arrangements, such as leases, when a related asset was improperly capitalised or expensed as part of the financing arrangement. Improperly reserved litigation restatements are also included in this category.
Revenue recognition	Restatements due to improper revenue accounting. This category includes instances in which: revenue was improperly recognized, questionable revenues were recognised, or any number of other mistakes or improprieties that led to misreported revenue. Also included in this category are transactions with non-related parties that artificially inflate volume and revenues, through the simultaneous purchase and sale of products between colluding companies. These are known as round-trip transactions.
Securities-related	Restatements due to improper accounting for derivatives, warrants, stock options and other convertible securities.
Restructuring, assets, or inventory	Restatements due to asset impairment, errors relating to accounting treatment of investments, timing and amount of asset write-downs, goodwill and other intangibles, restructuring activity and inventory valuation, and inventory quantity issues.
Reclassification	Restatements due to improperly classified financial statement items, i.e., current liabilities classified as long-term debt on the balance sheet, or cash flows from operating activities classified as cash flows from financing activities on the statement of cash flows.
Other	Any restatement not covered by the listed categories. Includes restatements due to inadequate loan-loss reserves, delinquent loans, loan write-offs, or other allowances for doubtful accounts or accounting estimates; and restatements due to fraud or accounting errors that were left unspecified.
Acquisition and merger	Restatements due to improper accounting for a complete lack of accounting for acquisitions or mergers. These include instances in which the wrong accounting method was used, or losses or gains related to the acquisition were understated or overstated.
Related-party transaction	Restatements due to inadequate disclosure or improper accounting of revenues, expenses, debts, or assets involving transactions or relationships with related parties.
In-process research and development Description	Restatements resulting from instances in which improper accounting methodologies were used to value in-process research and development at the time of an acquisition.

Source: GAO (2006)