



Instituto Superior de Economia e Gestão

UNIVERSIDADE TÉCNICA DE LISBOA

DESDE 1911

MESTRADO

CONTABILIDADE, FISCALIDADE E FINANÇAS EMPRESARIAIS

TRABALHO FINAL DE MESTRADO

DISSERTAÇÃO

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FOR THE AVAILABLE-FOR-SALE EQUITY
SECURITIES?**

**A MODEL TO ESTIMATE THE IMPAIRMENT UNDER
IAS 39**

RICARDO ANTÓNIO TORCATO FERRÃO

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RESUMO

A IAS 39 - Instrumentos Financeiros: Reconhecimento e Mensuração refere como evidência objectiva de imparidade um declínio significativo ou prolongado no justo valor do ativo. O que significa um declínio significativo não está definido no IAS 39. Este artigo mostra que 202 instituições financeiras europeias cotadas utilizam julgamentos diferentes sobre a expressão de declínio significativo no justo valor nas demonstrações financeiras de 2010. Apesar das instituições financeiras aplicarem o mesmo princípio contabilístico, as demonstrações financeiras não podem ser inteiramente comparáveis, contrariando um dos objectivos do Regulamento (CE) n.º 1606/2002 do Parlamento Europeu.

Neste trabalho, propomos uma orientação específica com base nos fundamentos teóricos do modelo de Black-Scholes, a fim de superar parcialmente a lacuna na IAS 39 de não fornecer critérios mais específicos para a classificação de investimentos em títulos classificados como disponíveis para venda. O modelo proposto permite uma aplicação coerente da IAS 39.61 e restringe parcialmente o julgamento dos gestores na aplicação do conceito de declínio significativo para eventos específicos. Levando em consideração as simulações, a aplicação do modelo produziu resultados diferentes em comparação com as práticas adoptadas pelas instituições financeiras. Negligenciar a variável volatilidade das acções parece-nos que é uma importante limitação do modelo empírico que está a ser utilizado por muitas empresas na análise do que se entende por declínio significativo. Assim, bancos e companhias de seguros poderiam beneficiar da incorporação deste modelo na avaliação da imparidade.

Palavras-chave: comparabilidade; disponíveis para venda; IAS 39; imparidade; instituições financeiras; práticas contabilísticas; termos e expressões que exprimem probabilidade

ABSTRACT

IAS 39 - Financial instruments: Recognition and Measurement refers as objective evidence of impairment a significant or prolonged decline in fair value of the asset. What is meant by a significant decline is not defined in IAS 39. This paper shows that 202 European financial institutions listed make different judgments on the expression of significant decline in fair value in financial statements of 2010. Despite financial institutions apply the same accounting standard, financial statements cannot be entirely comparable, contradicting one of the aims of the Regulation (EC) No 1606/2002.

In this paper we propose a specific guidance based on the theoretical foundations of the Black-Scholes model, in order to partially overcome the gap in IAS 39 not to provide more specific criteria for classifying investment in AFS equity securities as being impaired or not. The proposed model allows a consistent application of IAS 39.61 and restricts in part the discretion of managers in implementing the concept of significant decline to specific events. Taking into consideration the simulations, the application of the model produced different results compared to the practices adopted by financial institutions. Neglecting the variable volatility of shares seems to us that this is an important limitation to the empirical model that is being used by many companies in the analysis of what is meant by significant decline. Therefore, banks and insurance companies could benefit by incorporating this model in their assessment of impairment.

Keywords: accounting practices; available-for-sale; comparability; financial institutions; measurement; IAS 39; impairment; verbal probability expressions

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1. Introduction

Regulation No. 1606/2002 of the European Parliament and Council of July 19, established the obligation of companies with securities listed on a regulated market on a Member State to use the accounting standards issued by the International Accounting Standards Board (and however adopted by the European Commission) in the preparation and presentation of consolidated accounts for the financial year beginning on or after January 1, 2005.

The objective of this initiative aimed the efficient functioning of capital markets by improving the degree of transparency and comparability of financial statements achieved by harmonizing financial reporting by companies. These objectives of the European Commission meet the accounting literature. The adoption of International Accounting Standards / International Financial Reporting Standards (IAS / IFRS) ensure investors gain more direct benefits (e.g. reduction of costs associated with the reconciliation of results) and indirect (e.g. better information tends to reduce the cost of capital) (Ball, 2006). Tyrrall et al, (2007) stated that IFRS adoption contributes to boosting domestic and international financial markets' efficiency due to the increase in understandability, comparability and reliability of financial statements.

The adoption of the IAS/IFRS may not necessarily indicate a high degree of harmonization and uniformity¹. Financial reporting is the result of accounting choices that must be met consistently. Francis (2001) identifies several categories of choice, among which, judgments and estimates required to implement generally accepted accounting rules or methods. The application of IAS/IFRS involves considerable judgment and the use of private information, as a result in substantial discretion in financial reporting (Daske et al, 2008). On the other hand, financial reporting is influenced by the users of financial statements, culture, the incentives of managers and auditors and institutional variables (e.g. economic, political, supervisory bodies) (Ball, 2008). Despite the growing adoption of IAS / IFRS, the literature shows that these factors influence the financial reporting (e.g. Kvaal and Nobes, 2010), in particular, judgment in determining impairment losses (e.g. Beatty and Weber, 2006; Abu Ghazaleh et al, 2011.)

The mandatory adoption of IAS 39 - *Financial instruments: Recognition and Measurement* by the Commission Regulation (EC) No 1126/2008 of 3 November 2008, established among others, the important issue of recognition of impairment losses in available-for-sale (AFS) financial assets. IAS 39.61 refers as objective evidence of impairment a significant or prolonged decline in fair value of the asset. What is meant by a significant decline is not defined in IAS 39 and therefore is part of the judgment of who prepares the financial statements. The opportunity for managers to use their judgment about what they mean by significant decline creates the

¹ See Ali (2005) for a detailed review of empirical studies on harmonization of accounting and reporting practices and compliance with IAS/IFRS.

opportunity to manage the results. According to Healy and Wahlen (1999), earnings management consists of the accounting choices of managers in order to obtain a specific gain for themselves or for their companies. Agency theory predicts that managers will use the discretion. Nelson (2003) concludes that the principle-based standards, such as the IAS / IFRS, are more likely to lead to earnings management. IAS 39.61 allows a certain freedom of decision managers to specific situations in order to satisfy particular interests, contributing to the discretion in the determination of impairment losses. The use of different criteria for the same event (asset is impaired or not) and inconsistent application of the principles does not allow full comparability of financial information between companies in the same sector. The principles-based standards (such as IAS 39), *fails to ensure a consistent application because it allows management to exert judgment differently in identical cases* (Wustemann and Wustemann, 2010, p. 1).

This work has two goals: i) identify the criteria used in the preparation of financial statements in 2010 by financial institutions whose shares are quoted on a regulated market in a Member State to recognize the significant decline in the fair value of equity instruments classified as assets available-for-sale, and ii) present a model for estimation of impairment losses based on the probability of the asset to recover its initial value at a given time horizon.

This paper contributes to the literature in three distinct ways. First, how information is disclosed to the market is an important issue in ensuring market efficiency (Ding et al, 2007) and know what companies should do is a central theme in the investigation of financial reporting (Ball, 2008). Our study falls in the works about accounting policies choices in certain subjects under IAS/IFRS (e.g. Morais, 2008; Kvaal and Nobes, 2010). Our study shows the diversity of criteria used by companies in the sample for the recognition of impairment as a result of the significant decline in the fair value of AFS equity securities. Results suggest that financial statements under IAS/IFRS might be less comparable than users of these information possibility assume. Second, the consistent application of accounting standards requires specific guidance in order to frame management's judgment (Wustemann and Wustemann, 2010). In this paper we propose a specific guidance based on the theoretical foundations of the Black-Scholes model, in order to partially overcome the gap in IAS 39 not to establish more specific criteria for classifying investment in AFS equity securities as being impaired or not. According to Ball (2008) companies should do an important theme in the investigation of financial reporting. Significant decline is a core concept in recognition of impairment in the AFS equity securities but operationalization of this criterion has not been addressed. The proposed model allows the consistent application of IAS 39.61 and limits in part the judgment of managers in implementing the concept of significant decline to specific events.

Third, the financial crisis of recent years has raised the importance of financial reporting in the banking industry (Gebhardt and Novotny-Farkas, 2011) and insurance industry. This period has been characterized by a decrease of share prices and an increased volatility in the equity market. The Investment in AFS equity securities are an important part of the assets of financial institutions in Europe. The judgment of the managers on significant decline in the fair value has consequences for the Capital and Income in the period. Although IAS 39 is being recast with significant changes on the issue of impairment losses on financial assets, it is still in force². Given the current political crisis of sovereign debt in Europe, equity markets have registered substantial declines in equity prices. Therefore, financial institutions are again confronted with high potential losses on their equity portfolios.

After this introduction, this paper contains four additional chapters. In the next chapter we will examine the accounting rules laid down for the issue of the recognition of impairment losses on available-for-sale financial assets. In addition to IAS 39 we will consider other standards issued by other standard setting bodies. In chapter 3 is presented the result of the analysis reports and accounts of European financial institutions on the subject under study. In chapter 4 we describe a model of asset valuation to be used in the analysis of the probability of the asset to recover its initial value (purchase price) to get objective evidence that the asset is impaired. Additionally, the results of this analysis and interpretation of probabilistic model are contained in this chapter. Finally, the conclusions of this study are presented in chapter 5.

² However this standard is in process of gradual replacement due to expire in 2011, although it remains in effect until 2013. Its successor, the IFRS 9 - Financial Instruments has been published in two parts, one on 12 November 2009 and another on 28 October 2010 and consist of the 1st phase of this process. The new regulation aims to replace IAS 39 in order to simplify and reduce complexity in the use of financial instruments.

2. Impairment of Available-for-Sale Equity Securities

2.1. Under IAS/IFRS

The current version of paragraph IAS 39.45 classifies financial assets into four categories: financial assets at fair value through profit or loss; held-to-maturity investments; loans and receivables; and AFS financial assets. According a definition of each of these categories (IAS 39.9), investments in equity securities³ can be classified as AFS financial assets or financial assets at fair value through profit or loss. The classification depends on the intention and ability to hold the invested assets.

On initial recognition, an AFS financial asset is measured at initial cost plus transaction costs that are directly attributable to the acquisition. In subsequent periods, AFS financial assets are measured at fair value⁴, whose variations indicate potential gains or losses. Gains or losses arising out of changes in fair value shall be recognized in Other Comprehensive Income, except losses due to impairment which shall be recognized in Profit or Loss, until the financial asset is derecognized. The amount of impairment is the difference between carrying amount (acquisition cost less any impairment loss already recognized in Profit or Loss) and current fair value.

An AFS financial asset is impaired when: i) its fair value has declined to below cost; and ii) there is objective evidence of impairment, i.e., the cost may not be recoverable in the future as a result of one or various events that have a negative impact on the estimated future cash flows of the financial asset. A decline in the fair value of a financial asset below its cost is not necessarily evidence of impairment. Therefore, entities holding AFS equity instrument are required to assess whether there is objective evidence of impairment at the end of each reporting period. Paragraphs IAS 39.59 and IAS 39.61 set out several events considered as objective evidence of impairment in equity instruments, specifically, a significant or prolonged decline in the fair value of an investment in an equity instrument below its cost. Consequently, either a significant or a prolonged decline is sufficient to require the recognition of an impairment loss.

IAS 39 does not define or provide any further guidance or quantitative thresholds determining what should be considered significant or prolonged decline in fair value of an investment in an equity instrument and does not require an entity to define these terms. In some instances, IFRIC rejected the possibility to include in the Agenda, the topic of guideline on the meaning of “significant or prolonged” (IFRIC Update, June 2005 and May 2009). Thus, entity should use professional judgment in assessment whether a decline in fair value below cost is also considered objective evidence of impairment. Under these circumstances, the wide diversity of

³ The definition of equity instrument includes shares of stock or equity securities (Paragraph 16 of IAS 32 – *Financial instruments: presentation*)

⁴ Except investment in equity instruments that do not have a quoted market price in an active market and whose fair value cannot be reliably measured are valued at cost.

impairment approaches hinders the desired comparability in financial reporting. Consequently, considerable diversity in practice is causing concern to users of financial statements and undermining confidence (IFRIC Meeting, May 2009).

The term “prolonged decline” should be assessed based on the period for which fair value has been below than original cost at initial recognition. According IAS 34 – *Interim Financial Reporting*, an entity shall apply the same accounting policies in its interim financial statements as are applied in its annual financial statements. And, measurements for interim reporting purposes shall be made on a year-to-date basis. Additionally, IFRIC 10 – *Interim financial reporting and Impairment* requires that an entity shall not reverse an impairment loss recognized in a previous interim period in respect of an investment in equity instrument. In this context, the application of impairment accounting policy in interim financial reporting (half-yearly or quarterly), should lead the entities to consider a period less than nine months as a prolonged decline. The remaining entities with annual reporting, it is reasonable to extend the criterion to 12 months.

Paragraph IAS 39.58 sets out the principle that any financial assets must be assessed at the end of each reporting period to determine if there is any objective evidence of impairment. Although the AFS equity securities may be part of a portfolio, each asset must be considered separately for impairment. Because each equity security has its own characteristics (e.g. return, volatility). Another important issue of impairment is the accounting of the further decline of fair value of AFS equity instrument after an impairment loss has been recognized in previous Profit or Loss Statement. Paragraph IAS 39.61 presents events and circumstances that gave rise that the cost of investment (i.e. acquisition cost or original cost at initial recognition) in the equity instrument may not be recovered. Therefore, if the asset is considered impaired in prior years, any subsequent decline in fair value shall be recognized in Profit or Loss. In these situations, it is irrelevant whether the further decline is significant or prolonged. The continued decline in the fair value of an AFS equity instrument is an event that reinforces the judgment of a lower probability of recovering the initial investment.

The recognition of impairment losses on AFS equity securities may have major consequences in the financial results of the Entity because it must recognize potential cumulative losses (including previous years) in the Profit or Loss for the current period. If there is objective evidence of an impairment loss on an AFS financial asset, the cumulative loss that had been recognized directly in Equity, is removed from Equity and recognized in Profit or Loss. If, the fair value of an AFS financial asset increases in subsequent period, the impairment loss are not reversed through Profit or Loss, but recognized at Equity.

The determination of what constitutes a significant or prolonged decline in fair value is a subject that requires the application of professional judgment. Therefore, an Entity shall disclose information in the Notes about: i) the analysis of financial assets that are individually determined to be impaired at the end of the reporting period, namely, the threshold applied; and ii) the judgments made in determining the existence of objective evidence of impairment of AFS equity securities. Thus, entity allows the users to understand their financial statements and compare them with other entities (IAS 1 – Presentation of financial statements and IFRS 7 – Financial instruments: disclosures).

2.2. Under USGAAP and Industry Practices

IAS/IFRS do not define prolonged decline in fair value of an investment in AFS equity instrument. In this situation, management shall use judgment in developing and applying an accounting policy that results in relevant and reliable information for users of financial statements. According to paragraph 12 of IAS 8 – *Accounting Policies, Changes in Accounting Estimates and Errors*, management may consider the most recent pronouncements of other standard-setting bodies that use a similar conceptual framework to develop accounting standards, other accounting literature and accepted industry practices to the extent that these do not conflict with the requirements in IAS/IFRS and Framework.

A letter addressed to IFRIC (2009), Ernst & Young says that *regulators have, in the current circumstances, introduced thresholds ranging from a 20% decline below cost or 6 months of sustained decline, to a decline of 40% below cost having been sustained for at least 18 months.* Circular 4/2004 of the Bank of Spain (subsequently amended by other circular) established the rules and formats applicable to the public and confidential financial reporting of the Spanish Credit Institutions. This Circular states that there is objective evidence of impairment of AFS equity securities when the decline in the fair value exceeds 40% and takes place over a period of 18 months (No 19 of article 29). However, the Circular is not in accordance with IAS 39. IAS 39.61 requires that the decline needs only to be significant or prolonged to be considered objective evidence of impairment. There is no requirement that both criteria are met.

According Ball (2008), financial reporting is influenced by auditors. Therefore, auditors may establish some criteria about what mean a significant decline in fair value. Ernst & Young (2011) considers that under normal circumstances a decline of more than 20% in fair value is significant, acknowledging the trigger of 30% in cases of less liquid investments but particularly volatile. In Australia, the standard that regulates the accounting for financial instruments (AASB 139 – Financial instruments: recognition and measurement) is identical to the issue of IAS 39 Impairment of financial assets available-for-sale. KPMG in Australia (2008) considers

that there is objective evidence of impairment in the following situations: i) a decline exceeding 20% over the original cost is significant, or ii) a decline in market price that persists for more than nine months is usually prolonged.

FASB ASC 320 – Investments: debt and equity securities (formerly FAS 115 – *Accounting for certain investments in debt and equity securities*) addresses the accounting and reporting for investments in equity securities classified as *available-for-sale securities*. An equity securities investment that have readily determinable fair values shall be classified as AFS securities when is not classified as trading securities or as held-to-maturity securities. These financial assets are measured subsequently at fair value in the statement of financial position and unrealized gains or losses are excluded from earnings and reported in a separate component of shareholders' equity. Every reporting period, investor shall assess whether decline in the fair value below the cost of AFS equity securities (i.e. impairment) is either temporary or other-than-temporary. When a decline in fair value below cost is considered to be other-than-temporary, the impairment is recognized in the income statement. Impairment losses establish a new cost basis. Consequently, further decline in fair value below the new cost basis may be considered temporary or other-than-temporary.

Like the IAS 39 does not quantify guidance on what is significant decline in fair value in equity securities, FASB ASC 320 does not define the term other-than-temporary. SEC Staff Accounting Bulletin Topic 5M presents three criteria which, individually or in combination, indicate that the impairment is other-than-temporary: i) the length of the time and severity of the impairment; ii) the financial condition and near-term prospects of the issuer, and iii) the investor has the positive intention and ability to hold the equity securities for a period of time sufficient to allow a fully recover of the entity's cost basis. The first two criteria require a professional judgment about the possibility (whether and when) of equity instrument will recovery its value within certain period. Thus, the investor should consider new indicators related to environment, industry and management of the issuer as well as the return and the volatility of the equity securities. In assessing the third criterion should be considered historical sales of impaired assets and the average portfolio turnover. In conclusion, SEC Staff stated that impairment is other-than-temporary if the evidence deemed by management indicates that the realizable value is lower than the carrying value of the AFS equity securities.

2.3. Assessing probability of impairment under GAAP

A decline in fair value to less than cost is not necessarily impairment. Entities holding AFS equity securities shall assess whether there is objective evidence of impairment (IAS 39.58) or impairment is other-than-temporary (ASC 320). Both GAAP require that an entity assess the

possibility of fair value of AFS equity securities exceeds its cost. Indeed, IAS 39.61 states that there is objective evidence of impairment when adverse effects that have taken place in the technological, market, economic or legal environment in which the issuer operates, indicates that the cost of the investment in the equity instrument may not be recovered. The expression "may not be recovered" means the absence of absolute certainty. The evolution of the asset's fair value is uncertain and therefore possibly associated with a probability distribution. FAS 115 gives an example of impairment that considers the probability that the investor will be unable to collect all amounts due according to the contractual terms of a debt security. Hence it is essential that the judgment of managers considers the probability of the investment in AFS equity securities will not be recovered.

Managers need to use judgment when developing specific financial accounting standards (Murray, 2010). The expression probability is associated with uncertainties and used in several IAS/IFRS to set threshold for recognition, measurement and disclosure of events and transactions in financial statements. Excluding IAS 37.23⁵, the standards do not provide quantitative threshold but verbal probability expressions. For example, IAS 31.54 uses the term "remote" to set the threshold for the disclosure of a contingent liability related with interests in joint ventures. As a further example, IAS 11.11 uses expression "probable" to set the threshold for variations in contract work is considered as revenue.

In the literature, we found several studies that seek to identify numerical probabilities assigned by auditors, managers and users of financial statements to present qualitative thresholds in accounting standards related to uncertainty and probability (e.g. Laswad and Mak, 1997; Simon, 2002; Aharony and Dotan, 2004; Du and Stevens, 2011). Table 1 shows a summary of the studies that identified the numerical probabilities associated with verbal probability expressions presented in several IAS / IFRS. These studies have adopted two different methodologies in survey research instrument. As Davidson and Chrisman (1993), Douppnik and Richter (2003) and Teixeira and Silva (2009) presented a list of expressions that are used in IAS / IFRS, and other studies (Douppnik and Richter, 2004; Douppnik and Riccio, 2006; Chand et al, 2012) provided a list of excerpts containing uncertainty expressions selected from IAS/IFRS. Then, the authors asked respondents to indicate the level of probability to each expression.

⁵ IAS 37 defines probable as more likely than not to occur, i.e, recognition as a liability would require a greater than 50 percent probability of occurring.

Table 1 - Quantitative meanings of verbal uncertainty expressions under IAS/IFRS

Verbal expressions	Davidson and Chrisman (1993)		Doupnik and Richter (2003)		Doupnik and Richter (2004)		Doupnik and Riccio (2006)		Teixeira and Silva (2009)	Chand et al, (2012)	
Virtually certain	89	89.3	91.75	91.87	77.91	85.72			92		
Reasonable assurance / certain	73.4 69.5 72.5	76.8 76.8 81.9 / 91	81.38	81.48	76.69	77.27	70.53 76.29	75.15 78.88	77 78	73.66	75.53
Expected			80.16	72.88 71.99						74.24	79.47
Assurance / certainty	86.5	91.7	79.46	96.73	74.09	91.12					
Sufficient certainty			78.17	81.77	73.56	79.10					
Reasonably likely			71.97	72.30							
Reasonably possible									64		
Substantially										82.56	80.66
Probable	69.3	83.9 / 71.9	71.37	70.49 68.14	74.27 71.59 73.35 74.12	74.47 67.54 71.44 65.56	78.43 77.65 78.49 76.56 73.19 64.81 74.31	73.58 74.94 74.13 71.95 71.56 64.32 71.79	74	77.35	74.87
Possible									54		
Sufficiently										71.19	54.95
Major part										74.37	78.97
Likely	69.3	54.5	70.89	71.99 68.14	62.59	63.04					
With the prospect			53.28	58.17							
Insufficient certainty			42.60	44.64	63.09	55.96					
Not probable			32.61	21.76							
No longer probable			29.38	24.75 19.59 15.51	57 64.93 63.01	67.34 61.28 66.31	44.57	42.96			
Unlikely			27.13	24.93							
Seriously in question			23.96	13.05							
Not expected			23.79	16.83	76.18	62.19					
Remote	15.9	16.2 / 18.2	16.38	11.46	47.63	41.82	23.88	12.67	10	58.76	34.68
Insignificant										55.22	49.51
Sample	Anglophone senior accounting students in Canada	Francophone accounting students in Canada	US auditors	German-speakers auditors	US auditors	German auditors	Brazilian accountants	US accountants	Portuguese auditors	Chinese accounting students	Anglo-celtic accounting students

Table 1 shows that there are no studies that have identified a quantitative threshold for the expression "may not be recovered" present in IAS 39.61. Moreover, the results obtained in several studies have shown that the terms used throughout the uncertainty of the IAS / IFRS are differently interpreted. According to Douppnik and Riccio (2006, p. 256) *financial reporting decisions based on probability thresholds are a function of two factors: i) interpretation of the probability expression threshold, and ii) analysis of facts and circumstances to determine whether the probability threshold has been achieved*. Several authors have attempted to identify the causes and explanations for the differences in interpretations of accounting standards (e.g. Nelson and Kinney, 1997; Aharony and Dotan, 2004).

The studies of Douppnik e Richter (2004), Douppnik e Riccio (2006), Tsakumis (2007) and Chand et al, (2012) revealed that national culture has a significant influence on the judgment of professionals on the interpretation and application of verbal expressions of uncertainty contained in IAS / IFRS. Beyond the political and legal system, financial markets, auditors, regulators and models of corporate governance, national culture is part of the factors that affect the international comparability of financial reporting (Ball, 2006; Nobes, 2006). According to Chand et al, (2012) this should be particularly relevant for regulators and standard-setters who are involved in the process of convergence of accounting standards. The adoption of IAS / IFRS by a country or a group of countries (e.g. European Union) may not be sufficient to ensure equivalent quality of financial reporting. Indeed, different interpretations of the same uncertainty expressions contained in IAS/IFRS can impair international convergence and comparability of financial reporting (Zeff, 2007). In this context, Ma and Lambert (1998) report that clarifying the concept of probability (or uncertainty) used in the accounts should be a priority for standard setters. Laswad and Mak (1994) recommend that standard-setters should attempt to harmonize uncertainty expressions across countries.

Regulation (EC) No 1606/2002 had the goal to ensure a high degree of transparency and comparability of financial statements. However, European Central Bank (Occasional Papers Series, No 13) states that the comparability of financial statements may be affected by the proliferation of different internal models and subjective valuation of financial instruments, both resulting estimates of fair value as from different judgments concerning impairments. The differences in judgments about the impairments of AFS equity securities may be associated with the different interpretations of the expressions "may not be recovered," or "significant decline" present in IAS 39.61. This work aims to provide an instrument able to quantify those expressions in view of the relevant variables in the estimation of the price of the equity instrument.

3. Significant Decline in Available-for-Sale Equity Securities: perspective of Financial Institutions

3.1. Methodology and sample selection

The first objective of this study is identify the accounting policies used by Financial Institutions with shares listed on a regulated market of any Member State in recognition of the significant decline in the fair value of available-for-sale equity securities. To accomplish this goal, we first manually collected information about the accounting policies relating to the subject under investigation from the annual reports under IAS/IFRS available on the company's websites. We examined the Notes of Financial Statements in order to identify whether the Financial Institution had available-for-sales equity securities and, in that case, which accounting policy for recognition of significant decline was adopted.

The sample contains 202 Financial Institutions listed in major European Stock Exchange and that prepares Financial Statements of 2010 in conformity with IAS/IFRS (Appendix A). Table 2 shows the total number of financial institutions included in the sample organized by country.

Table 2 - Financial institutions included in the sample⁶

Market	Total	Criteria disclosed	Market	Total	Criteria disclosed
Austria	10	4	Lithuania	2	
Belgium	4	3	Luxembourg	2	1
Bulgaria	5	1	Malta	5	
Cyprus	5	1	Netherlands	6	3
Czech Republic	1		Poland	13	
Denmark	10		Portugal	4	2
Finland	4	1	Romania	3	
France	27	20	Slovakia	1	
Germany	14	6	Slovenia	2	
Greece	9		Spain	10	5
Hungary	3		Sweden	6	1
Ireland	4		United Kingdom	28	1
Italy	24	19			
Total				202	68

⁶ Datastream database

The key conclusion from Table 2 is that from 202 companies in the sample only 68 discloses criteria for measuring impairment on available-for-sale equity securities, which represents 34% of the entire sample.

Table 3 shows descriptive statistics from sample companies related to the subject under investigation. Financial institutions had an average asset of 149,961 million euros, which shows their significance in the European economy. An important part of the assets of these companies relates to the investments classified as available-for-sale.

Table 3 - Descriptive statistics (in millions of euros)⁷

	Mean	Standard deviation	Median	Minimum	Maximum
Total Assets	149,961	360,834	15,748	34	1,998,158
Total Liabilities	142,350	345,476	14,333	7	1,922,450
Available-For-Sale Assets (AFS)	17,628	48,722	1,564	0	318,315
Net Income	485	1,636	86	-10,162	10,621

3.2. Results

Financial Institutions disclose their own criteria concerning the impairment of financial instruments within their accounting policies or key judgments and estimates disclosures. Table 4 shows the policies of Financial Institutions to consider significant decline in fair value of AFS equity securities and the number of companies that adopted them.

Table 4 – Quantitative thresholds used by European Financial Institutions⁸

Thresholds	n/a	10%	20%	25%	30%	35%	40%	50%	60%	80%	90%	Total
Banks	116	1	8	1	20	1	5	11	0	1	1	165
Insurances	18	0	8	1	1	0	4	1	2	2	0	37
Total	134	1	16	2	21	1	9	12	2	3	1	202

The result indicates distinct judgments among financial institutions. The majority of companies (66%) do not disclose specific criteria for significant decline in fair value of equity securities. In such cases, companies disclose a generic policy similar to IAS 39.61. For example, the triggers

⁷ Bankscope database.

⁸ Information extracted from the 2010 Consolidated Annual Report of companies under review.

used to determine whether there is objective evidence of impairment take in consideration whether the fair value of equity securities is substantially below the cost at the balance sheet date or book value is greater than the recoverable amount in certain period. Most of the companies identified where specific trigger have been disclosed, these criteria have fallen within the range between 20% and 50%. The decline in fair value of equity securities exceeds 30% of the cost is the specific criteria most frequently about objective evidence of significant decline.

This requires a more detail understanding due to the existence of factors, such as, the country or the sector, in which the financial institutions are inserted. Example of this situation was the case in Spain. In this situation the Bank of Spain decided to establish a standard of interpretation in order to standardize the accounting information. As previously mentioned, the standard twenty-ninth of the circular 4/2004 sets that exist evidence of impairment when a descent of 40% in the quote. Therefore the financial instruments classified as available-for-sale with a decrease of its value exceeding 40% in his quote is, according to the Bank of Spain, subject to identify the impairment losses arising out of this decline. Table 5 shows precisely this aspect, a presence of a mix of criteria for measure the impairments in AFS securities.

Table 5 - Financial criteria for AFS equity securities by country

	N/a	10%	20%	25%	30%	35%	40%	50%	60%	80%	90%	
Austria	6	1	2							1		10
Belgium	1			1	1			1				4
Bulgaria	4									1		5
Cyprus	4										1	5
Czech Republic	1											1
Denmark	10											10
Finland	3		1									4
France	7		2		14			4				27
Germany	8		6									14
Greece	9											9
Hungary	3											3
Ireland	4											4
Italy	5		4		4	1	1	7	2			24
Lithuania	2											2
Luxembourg	1						1					2
Malta	5											5
Netherlands	3			1			1			1		6

Poland	13											13
Portugal	2				2							4
Romania	3											3
Slovakia	1											1
Slovenia	2											2
Spain	5						5					10
Sweden	5		1									6
United Kingdom	27						1					28
	134	1	16	2	21	1	9	12	2	3	1	202

In terms of countries and industry representations, major companies that disclosed their criteria were companies from France (20) and they are mostly from banking sector (Table 4). Another quick assumption that emerges from Table 5, apart from most companies do not submit the criteria (66%), are the heterogeneity of measures even within a country (e.g. Italy).

According to Einhorn (2005), rational and risk-neutral investors stipulate a value of a corporation based on all available information. Broberg et al, (2010) report a growing interest in information and transparency from listed companies. Therefore, a single set of uniform accounting standards is likely to improve comparability of financial reporting across countries (Ashbaugh and Pincus, 2001; Bae et al, 2008). Convergence brings benefits, such as lowering the costs of comparing a company's financial position and performance across countries. Thus, European capital markets would become more globally competitive, consequently increasing liquidity for European firms (Armstrong et al, 2010). However, Table 5 shows a variety of quantitative criteria that are used by financial institutions, as well as, a lack of disclose of quantitative criteria for the definition of significant decline in fair value on AFS equity securities. This situation contributes to the decrease in transparency and comparability of financial information provided by companies contrary to the objectives referred in article 1 of the Regulation (EC) No1606/2002 for adoption of IAS/IFRS in European Union.

4. A Model to Estimate the Impairment

4.1. Description of the model

The first part of IAS 39.61 considers that is objective evidence of impairment when the occurrence of certain events adversely affects the issuer and therefore indicates that the investment cost of the equity instrument may not be recoverable. In such cases there is some conviction that loss is not temporary. In the same line, the judgment about whether the decline in fair value is significant or prolonged cannot ignore the probability that the asset's fair value exceed its cost within a specified period. IFRIC Update (May 2009) states that the existence of a significant or prolonged decline cannot be overcome by forecasts of an expected recovery of market values, regardless of their expected timing. In this interpretation emerges the concept of expected value of the asset within a specified period as a key element in identifying objective evidence of impairment. According to Hull (2003), the return of a stock can be described by an Ito process and the application of Ito's lemma is possible to deduce the following propositions:

$$\ln S_t - \ln S_0 \approx \phi \left[\left(\mu - \frac{\sigma^2}{2} \right) \delta t, \sigma \sqrt{\delta t} \right] \quad (1)$$

$$S_t = S_0 e^{\left(\mu - \frac{\sigma^2}{2} \right) \delta t + \sigma \varepsilon \sqrt{\delta t}} \quad (2)$$

Where:

S_t = stock price at a future time δt

S_0 = stock price at time zero

μ = expected return on stock

σ = volatility of the stock price

δt = interval of time

ε = random drawing from a standardized normal distribution

The probability of the asset with current price S_0 and volatility σ to overcome the cost k is likely to be estimated from equation 1. Assuming that the distribution of stock returns follows a normal distribution, then the estimate of probability is based on the following general expression used for a variable x :

$$P[x > k] = \int_k^{+\infty} \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}} dx \quad (3)$$

Assuming the risk-free interest rate r and the period of analysis t , the resolution of the equation 3 allows to reach the expression of the Black-Scholes equation known as $N(d_2)$.

$$P[x > k] = N(d_2) \quad (4)$$

where $N(x)$ represents the value of the distribution function at the point x and d_2 is given by:

$$d_2 = \frac{\ln(S_0/k) + \left(r - \frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}} \quad (5)$$

For example, if a share is priced at 9 euros and was bought for 10 euros, assuming a volatility of 20% and a risk-free interest rate of 5% per year, the likelihood of recovering the initial value within 12 months is 35%.

The probability of the asset recover its original cost should be confronted with the probability threshold α defined ex ante by the company. The probability threshold α corresponds to the judgment of the managers about the probability that transforms a temporary event in an other-than-temporary within a period of time recognized. Thus, the decline in fair value of the AFS equity securities would be considered significant if $N(x)$ is smaller than a given threshold:

$$N(d_2) < \alpha \quad (6)$$

The model requires the definition of the following variables: α , t and σ . The probability threshold α should be equivalent to the probability associated with the interpretation of the term "may not be recovered". The expression "might not" express the possibility of non-occurrence of an event. In Table 1 are identified verbal expressions of uncertainty similar ("not probable", "no longer probable", "unlikely", "not expected") and were subject to different interpretations (between 15.51% to 76.18%). The interpretation of "may" was object of analysis in studies in the context of other accounting standards. For example, the financial directors of large UK listed companies and UK auditors interpreted the term "may" in 39% of the context of UK accounting standards (Simon, 2002). The study of Laswad and Mak (1997) shows that the standard setters in New Zealand interpreted the term "may" with a probability of 35%.

Sometimes, the regulators set rules that influence the financial reporting (for example, loan loss provisions as shows in Pérez et al, 2008) by setting quantitative threshold for the expressions of uncertainty. Badia (2007) states that the Canadian firms with oil and gas activities should break down oil and gas reserves into proved, probable and possible reserves based respectively, the

probability of recovery greater than 90%, 50% and 10%. In conclusion, setting the probability threshold α should reflect prudence in preparing financial statements. According IASB Framework (paragraph 37), prudence is the inclusion of a degree of caution in the exercise of judgments needed in making estimates required under conditions of uncertainty, such that assets or income are not overstated and liabilities or expenses are not understated. Although the facts may show that the subsequent trial of α was incorrect, the change in fair value implies a retrial in line with the new information. The variable time t should be defined according to two factors: i) average annual portfolio turnover, and ii) time period considered for prolonged decline. The average annual portfolio turnover is an indicator of the historical intention and ability of the entity to hold the investment until eventually recover its cost. Time is usually measured in trading days, i.e., 263 days where the market is open. The pricing options literature (e.g. Solnik, 2000) states that the volatility σ can be estimated from past data. Burghardt and Lane (1990) highlighted that an option has an expiration date and it is inappropriate to compare its implied volatility with a fixed-period historical volatility. Thus, volatility σ takes the value of historical volatility of the asset given a time period equal to forecast time t . The calculation of volatility is based on the following equations which used daily rates of the active:

$$\sigma = \sqrt{\sigma^2} \quad (7)$$

$$\sigma^2 = \frac{1}{t-1} \sum_{i=1}^t (R_t - \bar{R})^2 \quad (8)$$

$$\bar{R} = \frac{1}{t} \sum_{i=1}^t R_t \quad (9)$$

$$R_t = \ln(S_t/S_{t-1}) \quad (10)$$

Nelson (2003) states that the use of bright line thresholds may be used to improve accuracy communication. Results from Table 2 show that some financial institutions use quantitative criteria to determine whether the decline in the fair value of the asset is significant. However these criteria neglect the volatility of the asset and the ability and intention to maintain the company's asset portfolio. The proposed model allows incorporating variables in the analysis that influence asset prices and thus assist entities to implement a judgment more robust and consistent with financial theory. The use of the Black-Scholes option pricing model to value equity instrument component in issuing convertible bond has been considered in IAS 32 – *Financial instruments: disclosure and presentations* (version 1995). The model seeks to operationalize the method of recognition of impairment in the context of significant decline in fair value of AFS equity securities.

4.2. Simulation

To illustrate the predictions generated by the model, we conduct a simulation using the EURO STOXX 50 Index. The index covers 50 stocks and provides a Blue-chip representation of industry leaders in the Eurozone. We assume that these shares are potential targets for investment by European banks and insurers. The simulation is based on the following assumptions: i) investment of 1 million euros in shares that compose the EURO STOXX 50 Index and distributed according to the representation of each action in that index; ii) investment is reported at 31 December 2009; iii) risk-free interest rate of 5%; and iv) period considered for determination of return and standard deviation of the shares is between 1 January 2010 to 31 December 2010. In Appendix B is presented the composition of the EURO STOXX 50 Index and the descriptive statistics for each measure. In Appendix B is shown the composition of the EURO STOXX 50 Index and the descriptive statistics for each stock.

Table 6 shows the results of impairment tests of the shares that compose the portfolio based on a series of scenarios constructed based on the binomial probability threshold α and the time t . Panel A shows the distribution of the number of shares with a probability of recovering its initial cost lower than the probability threshold α defined ex ante by investors as a function of time t . In these circumstances, the investor believes that the decline in fair value is significant, and so an objective evidence of impairment of AFS equity securities. The results show that there is a positive relationship between the number of assets considered impaired and probability threshold α . In these cases, the higher the security level assigned to the expression "may not be recovered" the greater possibility of classifying in impairment a share that has a fair value below its cost. On the other hand, the extension of the term involves a reduction of the shares that are classified as assets with significant decline in fair value. Given the historical volatility calculated for the different shares, extending the period of analysis increases the likelihood of the asset to recover their initial price.

According IAS 39.68, impairment losses shall be recognized in Profit or Loss and result from the difference between the acquisition cost and current fair value. Panel B shows the situation in which $t = 6$ months and $\alpha = 40\%$ the investor would have to acknowledge a loss of 99,700 euros which corresponds to approximately 10% of the initial investment. In less disadvantageous situation, in which $t = 12$ months and $\alpha = 10\%$, the investor should recognize a loss of 11,903 euros. In conclusion, various scenarios evidenced that the objective evidence that the cost may not be recovered depends on the judgments about the parameters α e t . The parameter t has a maximum limit on the judgment prolonged decline.

Table 6 - Amount and number of impaired assets

Panel A: Number of assets				Panel B: Amount of impairment (euros)			
Probability threshold (α)	Interval of time (t)			Probability threshold (α)	Interval of time (t)		
	6 months	9 months	12 months		6 months	9 months	12 months
10%	7	3	2	10%	32,338	17,591	11,903
15%	9	8	5	15%	49,913	45,438	24,113
20%	12	9	8	20%	57,760	49,913	45,438
25%	18	12	12	25%	79,780	57,760	57,760
30%	22	18	14	30%	91,772	81,306	62,369
35%	27	24	23	35%	98,450	94,107	93,402
40%	28	27	26	40%	99,700	98,450	97,080

Certain European financial institutions consider a significant decline to be one in which the fair value is below the cost by more than 20% or 30% or 50% (Table 5). Assuming a period $t = 12$ months, the adoption of such criteria would mean that the investor had to record impairment losses of respectively, 57,760 euros, 33,154 euros e 0 euros. These results are different from those achieved by applying the model. The policy pursued by some banks and insurance companies neglect the effect of some parameters used in the model of stock price. Some actions in the simulated portfolio had annual volatility higher than 40% (see the Appendix B). Despite, fair value has been below the cost by more than 20%, those stock have a probability to recover its cost. In contrast, the criterion of 50% overlooking stocks with annual volatility of 30%, which probability to recover its cost is 1%.

5. Conclusions

The application of IAS 39 requires that at each balance sheet date, the entity must assess whether there is objective evidence that an AFS equity securities are impaired. IAS 39.61 states that the significant decline in the fair value of an investment in an equity instrument below its cost is objective evidence of impairment. This paper provides empirical evidence of the accounting policies for recognizing impairment losses of AFS equity securities followed by 202 European financial institutions listed in financial statements of 2010. The results show that companies from the same sector make different judgments on the expression of significant decline in fair value. So the existence of differences in practice related in judgment is clearly in conflict with the objective of international harmonization and may mislead financial statement users who do not pay attention to them (Kvaal and Nobes, 2010). The observed differences in the criteria of impairment cannot be overcome by users because they have no information on the composition of the category of AFS equity instruments. Despite, financial institutions apply the same accounting standards, financial statements cannot be entirely comparable, contradicting one of the aims of the Regulation (EC) No 1606/2002. However, comparability in financial information is a good thing (Nobes, 2005), in particular for stakeholders.

IAS 39.61 uses the term may not be recovered in the process of determining an evidence of objective impairment. We have shown that in the case of investment in shares, the inclusion of the expression known as the Black-Scholes $N(d_2)$ allows to determine the probability of the asset to recover its cost in a given time horizon. Our model to estimate the impairment requires the definition ex-ante of a probability that makes a temporary in an other-than temporary within the time recognized – probability threshold α .

In this paper we propose a specific guidance based on the theoretical foundations of the Black-Scholes model, in order to partially overcome the gap in IAS 39 not to provide more specific criteria for classifying investment in AFS equity securities as being impaired or not. The operationalization of the significant decline concept has not been addressed. The proposed model allows a consistent application of IAS 39.61 and restricts in part the judgment of managers in implementing the concept of significant decline to specific events. Taking into consideration the simulations, the application of the model produced different results compared to the practices adopted by financial institutions. Neglecting the variable volatility of shares seems to us that this is an important limitation to the empirical model that is being used by many companies in the analysis of what is meant by significant decline. Therefore, banks and insurance companies could benefit by incorporating this model in their assessment of impairment.

6. References

- Abu Ghazaleh, N. M., Al-Hares, O. M. and Roberts, C. (2011), Accounting discretion in goodwill impairments, UK evidence, *Journal of International Financial Management & Accounting*, 22(3), 165-204.
- Aharony, J. and Dotan, A. (2004), A comparative analysis of auditor, manager, and financial analysts' interpretations of SFAS 5, *Journal of Business Finance & Accounting*, 31 (3/4), 475-504.
- Ali, M. J. (2005), A synthesis of empirical research on international accounting harmonization and compliance with International Financial Reporting Standards, *Journal of Accounting Literature*, 24, 1-52.
- Armstrong, C., M. Barth, A. Jagolinzer, and E. Riedl. (2010), Market reaction to the adoption of IFRS in Europe, *The Accounting Review*, 85 (1), 31-61.
- Ashbaugh, H., and M. Pincus (2001), Domestic accounting standards, international accounting standards, and the predictability of earnings, *Journal of Accounting Research*, 39, 417-434.
- Badia, Marc (2007), Probability Threshold and Equity Values, *Columbia Business School*. 1-57.
- Bae, K., H. Tan, and M. Welker (2008), International GAAP differences: the impact on foreign analysts, *The Accounting Review*, 83 (3): 593-628.
- Ball, R. (2006), international financial reporting standards (IFRS): pros and cons for investors, *Accounting and Business Research*, *International Accounting Forum*, 5-27.
- Ball, R. (2008), What is the actual economic role of financial reporting?, *Accounting Horizons*, 22(4), 427-432.
- Beatty, A. and Weber, J. (2006), Accounting discretion in fair value Estimates: An examination of SFAS 142 Goodwill Impairments, *Journal of Accounting Research*, 44(2), 257-288.
- Broberg P., Tagesson T. and Collin S. (2010). What explains variation in voluntary disclosure? A study of the annual reports of corporations listed on the Stockholm Stock Exchange, *Journal of Management and Governance*, 14, 351-377.
- Burghardt, Galen and Morton Lane (1990), How to Tell if Options are Cheap, *Journal of Portfolio Management*, 16 (2), 72-78.
- Chand, P., Cummings, L. and Patel, C. (2012), The effect of accounting education and national culture on accounting judgments: a comparative study of anglo-celtic and Chinese culture, *European Accounting Review*, 21(1), 153-182.

- Daske, H., hail, L., Leuz, C. and Verdi, R. (2008), Mandatory IFRS reporting around the World: early evidence on the Economic Consequences, *Journal of Accounting Research*, 46(5), 1085-1142.
- Davidson, R. A. and Chrisman, H. H. (1993), Interlinguistic comparison of international accounting standards: the case of uncertainty expressions, *International Journal of Accounting*, 28(1), 1-16.
- Ding, Y., O.K. Hope, T. Jeanjean, and H. Stolowy (2007), Differences between domestic accounting standards and IAS: Measurement, determinants and implications, *Journal of Accounting and Public Policy* 26 (1):1-38.
- Douppnik, T. S. and Richter, M. (2003), Interpretation of uncertainty expressions: a cross-national study, *Accounting, Organizations and Society*, 28(1), 15–35.
- Douppnik, T. S. and Richter, M. (2004), The impact of culture on the interpretation of "in context" verbal probability expressions, *Journal of International Accounting Research*, 3(1), 1-20.
- Douppnik, T. S. and Riccio, E. L. (2006), The influence of conservatism and secrecy on the interpretation of verbal probability expressions in the Anglo and Latin cultural areas, *The International Journal of Accounting*, 41(3), 237-261.
- Du, N. and Stevens, K. (2011), Numeric-to-verbal translation of probability expressions in SFAS 5, *Managerial Auditing Journal*, 26(3), 248-262.
- Einhorn, E. (2005), The nature of the interaction between mandatory and voluntary disclosures, *Journal of Accounting Research*, 43, 593-621.
- Ernst & Young (2011), *International GAAP 2011: general accepted accounting practice under International Financial Reporting Standards*, John Wiley & Sons
- Francis, J. (2001), Discussion of empirical research on accounting choice, *Journal of Accounting and Economics*, 31(1–3), 309-319.
- Gebhardt, G. and Novotny-Farkas, Z. (2011), Mandatory IFRS adoption and accounting quality of European banks, *Journal of Business, Finance & Accounting*, 38(3), 289-333.
- Healy, P.M., and J. M. Wahlen. (1999) A review of the earnings management literature and its implications for standard setting, *Accounting Horizons*, 13, 365-383.
- Hull, J.C. (2003), Options, Futures and Other Derivatives, 5th edit., Chp 11, *Prentice-Hall*.
- KPMG Australia (2008), Current market conditions – potential impact on financial reporting, *Flash report*, 08FR-023.

- Kvaal, E. and Nobes, C. (2010), International Differences in IFRS Policy Choice: a research note, *Accounting and Business Research*, 40(2), 173-187.
- Laswad, F. and Mak, Y. T. (1994), An international comparison of uncertainty expressions in accounting standards, *International Journal of Accounting*, 29(1), 1-19.
- Laswad, F. and Mak, Y. T. (1997), Interpretations of probability expressions by New Zealand standard setters, *Accounting Horizons*, 11(4), 16-23.
- Ma, R. and Lambert, C. (1998), In praise of Occam's Razor: A critique of the decomposition approach in IAS 32 to accounting for convertible debt, *Accounting and Business Research*, 28(2), 145-153.
- Morais, A.I., A. Fialho (2008), Do harmonised accounting standards lead to harmonised accounting practices? An empirical study of IAS 39 measurement requirements in some European Union countries, *Australian Accounting Review*, 18(3), 224-236.
- Murray, D. (2010), What are the essential features of a liability?, *Accounting Horizons*, 24(4), 623-633.
- Nelson, M. & Kinney, W. (1997), The Effect of Ambiguity on Loss Contingency Reporting Judgements, *The Accounting Review*, 72, 257-274.
- Nelson, M. & Kinney, W. (2003), Behavioral evidence on the effects of principles- and rules-based standards, *Accounting Horizons*, 17(1), 91-104.
- Nobes, C. (2005), Rules-based standards and the lack of principles in accounting, *Accounting Horizons*, 19(1), 25-34.
- Nobes, C. (2006), The survival of international differences under IFRS: towards a research agenda, *Accounting & Business Research*, 36(3), 233-245.
- Pérez, D., Salas-Fumás, V. and Saurina, J. (2008), Earnings and capital management in alternative loan loss provision regulatory regimes, *European Accounting Review*, 17(3), 423-445.
- Simon, J. (2002), Interpretation of probability expressions by financial directors and auditors of UK companies, *European Accounting Review*, 11(3), 601-629.
- Solnik, Bruno (2000), International Investments, 4th edition, *Addison-Wesley*.
- Teixeira and Silva (2009), The Interpretation of Verbal Probability Expressions Used in the IAS/IFRS: Some Portuguese Evidence, *Polytechnical Studies Review*, VII, 12, 057-073.
- Tsakumis, G. (2007), The Influence of Culture on Accountants Application of Financial Reporting Rules, *Abacus*, 43, 27-48.

Tyrrall, D., D. Woodward, and A. Rakhimbekova (2007), The relevance of International Financial Reporting Standards to a developing country: Evidence from Kazakhstan, *The International Journal of Accounting*, 42 (1), 82-110.

Wustemann, J. and Wustemann, S. (2010), Why consistency of accounting standards matters: a contribution to the rules-versus-principles debate in financial reporting, *Abacus*, 46, 1-27.

Zeff, S. A. (2007), Some obstacles to global financial reporting comparability and convergence at a high level of quality, *British Accounting Review*, 39(4), 290-302.

7. Appendix

7.1. Appendix A – List of companies in the sample by Country

AT

Banks

Bank für Tirol und Vorarlberg AG-BTV (3 Banken Gruppe)

BKS Bank AG

Erste Group Bank AG

Oberbank AG

Oesterreichische Volksbanken AG

Raiffeisen Bank International AG

Raiffeisenlandesbank Oberösterreich AG

Volksbank Vorarlberg e.Gen.

Wiener Privatbank SE

Insurance

Uniqa Versicherungen

Vienna Insurance Group A

BE

Banks

Dexia

Groupe Bruxelles Lambert

KBC Groep NV/ KBC Groupe SA-KBC Group

Insurance

Ageas (ex-Fortis)

BG

Banks

Bulgarian-American Credit Bank

Central Cooperative Bank AD

Corporate Commercial Bank AD

First Investment Bank AD

Insurance

Bulstrad Viena Insurance Group

CY

Banks

Bank of Cyprus Public Company Limited-Bank of Cyprus Group

Hellenic Bank Public Company Limited

Marfin Popular Bank Public Co Ltd

USB Bank Plc

Insurance

Atlantic Insurances

CZ

Banks

Komerční Banka

DE

Banks

Aareal Bank AG
Baader Bank AG
Comdirect Bank AG
Commerzbank AG
DAB Bank AG
Deutsche Bank AG
Deutsche Postbank AG
DVB Bank SE
HSBC Trinkaus & Burkhardt AG
IKB Deutsche Industriebank AG
Landesbank Berlin Holding AG-LBB Holding AG
MLP Ag
Oldenburgische Landesbank - OLB
Wüstenrot & Württembergische

Insurance

Allianz
Hannover Rückversicherung
Muenchener Rückversicherung

DK

Banks

Aarhus Lokalbank
Bank of Greenland-Gronlandsbanken A/S
Danske Andelskassers Bank A/S
Danske Bank A/S
Djurslands Bank A/S
Hvidbjerg Bank Aktieselskab
Kreditbanken A/S
Lollands Bank
Moens Bank A/S
Noerresundby Bank A/S
Nordjyske Bank A/S
Oestjydsk Bank A/S
Ringkjoebing Landbobank
Salling Bank A/S
Skjern Bank
Sparbank A/S
Sparekassen Himmerland
Sparekassen Hvetbo
Svendborg Sparekassen A/S
Toender Bank A/S
Totalbanken A/S
Vestfyns Bank A/S
Vordingborg Bank A/S

ES

Banks

Banca Cívica SA

Banco Bilbao Vizcaya Argentaria SA
Banco de Sabadell SA
Banco de Valencia SA
Banco Espanol de Crédito SA, BANESTO
Banco Pastor SA
Banco Popular Espanol SA
Banco Santander SA
Bankia, SA
Bankinter SA
Renta 4 Banco, S.A.

Insurance

Mapfre

FI

Banks

Aktia Plc
eQ Plc
Norvestia Oyj
Pohjola Bank plc-Pohjola Pankki Oyj
Sampo Plc

FR

Banks

Affine
Banque de la Réunion
BNP Paribas
Bourse Direct
Boursorama
Caisse Régionale de crédit agricole mutuel Atlantique Vendée-Crédit Agricole Atlantique Vendée
Caisse Régionale de Crédit Agricole Mutuel Brie Picardie-Crédit Agricole Brie Picardie
Caisse régionale de credit agricole mutuel d'Alpes-Provence-Credit Agricole Alpes Provence
Caisse régionale de credit agricole mutuel de la Touraine et du Poitou-Credit Agricole de la Touraine et du Poitou
Caisse régionale de crédit agricole mutuel de l'Ille-et-Vilaine-Crédit Agricole de l'Ille-et-Vilaine
Caisse régionale de crédit agricole mutuel de Normandie-Seine
Caisse régionale de crédit agricole mutuel de Paris et d'Ile-de-France-Crédit Agricole d'Ile-de-France
Caisse régionale de Crédit Agricole mutuel du Morbihan-Crédit Agricole du Morbihan
Caisse régionale de crédit agricole mutuel Loire Haute-Loire-Crédit Agricole Loire Haute-Loire
Caisse régionale de crédit agricole mutuel Nord de France-Crédit Agricole Nord de France
Caisse régionale de credit agricole mutuel Sud Rhône -Alpes-Credit Agricole Sud Rhône Alpes
Caisse Régionale de Crédit Agricole Mutuel Toulouse 31-Crédit Agricole Mutuel Toulouse 31 CCI
Cofitem - Cofimur
Compagnie Financière Martin-Maurel
Crédit Agricole S.A.
Crédit Foncier et Communal d'Alsace et de Lorraine (Banque)-CFCAL Banque
Crédit Industriel et Commercial - CIC
Natixis
Paris Orléans SA
Société Générale

Union Financière de France Banque
Viel & Compagnie

Insurance

April
AXA
CNP Assurances
Euler Hermes
Scor Securities

GB

Banks

Aberdeen Asset Management Plc
Arbuthnot Banking Group Plc
Barclays Plc
Brewin Dolphin Holdings Plc
Close Brothers Group Plc
Electra Private Equity Plc
European Islamic Investment Bank Plc
Henderson Group PLC
HSBC Holdings Plc
ICAP Plc
Intermediate Capital Group Plc
Investec Plc
Lloyds Banking Group Plc
London Capital Group Holdings Plc
Man Group Plc
Rathbone Brothers Plc
RIT Capital Partners Plc
Royal Bank of Scotland Group Plc (The)
Schroders Plc
Standard Chartered Plc
Tullett Prebon Plc

Insurance

Alea Group Holdings (Non-NASDAQ OTC)
Amlin
Aviva
Cobra Holdings
Jardine Lloyd Thompson
Lancashire Holdings
Old Mutual
Personal Group Holdings
Prudential
RSA Insurance Group

GR

Banks

Agricultural Bank of Greece
Alpha Bank AE

Attica Bank SA-Bank of Attica SA
EFG Eurobank Ergasias SA
General Bank of Greece SA
National Bank of Greece SA
Piraeus Bank SA
Proton Bank S.A.
T Bank S.A
TT Hellenic Postbank S.A

HU

Banks
FHB Mortgage Bank Plc-FHB Jelzalogbank Nyrt.
OTP Bank Plc
Insurance
CIG Pannonia Life Insurance

IE

Banks
Allied Irish Banks plc
Bank of Ireland
Insurance
FBD Holdings
Irish Life and Permanent Group Holdings

IT

Banks
Apulia ProntoPrestito SpA
Azimut Holding SpA
Banca Carige SpA
Banca Finnat Euramerica SpA
Banca Generali SpA-Generbanca
Banca Ifis SpA
Banca Intermobiliare di Investimenti e Gestioni
Banca Monte dei Paschi di Siena SpA-Gruppo Monte dei Paschi di Siena
Banca popolare dell'Emilia Romagna
Banca popolare dell'Etruria e del Lazio Soc. coop.
Banca Popolare di Milano SCaRL
Banca Popolare di Sondrio Societa Cooperativa per Azioni
Banca Popolare di Spoleto SpA
Banca Profilo SpA
Banco Desio - Banco di Desio e della Brianza SpA
Banco di Sardegna SpA
Banco Popolare
Conafi Prestito SpA
Credito Artigiano
Credito Bergamasco
Credito Emiliano SpA-CREDEM
Credito Valtellinese Soc Coop
Exor Spa

Intesa Sanpaolo
Mediobanca SpA
Mittel SpA
UniCredit SpA
Unione di Banche Italiane Scpa-UBI Banca

Insurance

Cattolica Assicurazioni
Mediolanum
Milano Assicurazioni
Premafin-Holding di Partecipazione
Unipol

LT

Banks

AB Ukio Bankas
Siauliu Bankas

LU

Banks

Espirito Santo Financial Group S.A.

Insurance

Foyer

MT

Banks

Bank of Valletta Plc
FIMBank Plc
HSBC Bank Malta Plc
Lombard Bank (Malta) Plc

Insurance

Middlesea Insurances

NL

Banks

BinckBank NV
Delta Lloyd NV-Delta Lloyd Group
ING Groep NV
Kas Bank NV
SNS Reaal NV
Van Lanschot NV

Insurance

Aegon

PL

Banks

Bank BPH SA
Bank Gospodarki Zywnosciowej SA-Bank BGZ
Bank Handlowy w Warszawie S.A.
Bank Millennium
Bank Ochrony Srodowiska SA - BOS SA-Bank Ochrony Srodowiska Capital Group
Bank Polska Kasa Opieki SA-Bank Pekao SA

Bank Zachodni WBK S.A.
BNP Paribas Bank Polska SA
BRE Bank SA
DZ Bank Polska SA
Getin Noble Bank SA
ING Bank Slaski S.A. - Capital Group
Kredyt Bank SA
Powszechna Kasa Oszczednosci Bank Polski SA - PKO BP SA

Insurance

Tueuropa

PT

Banks

Banco BPI SA
Banco Comercial Português, SA-Millennium bcp
Banco Espirito Santo SA
BANIF SGPS SA

RO

Banks

Banca Comerciala Carpatica SA
BRD-Groupe Societe Generale SA
Transilvania Bank-Banca Transilvania SA

SE

Banks

Nordea Bank AB (publ)
Nordnet AB
Skandinaviska Enskilda Banken AB
Svenska Handelsbanken
Swedbank AB

Insurance

Zavarovalnica Triglav

SI

Banks

Abanka Vipac dd
Nova Kreditna Banka Maribor d.d.
Probanka d.d. Maribor

SK

Banks

Prima banka Slovensko a.s.
Tatra Banka a.s.
Vseobecna Uverova Banka a.s.

7.2. Appendix B – Components of EURO STOXX 50 Index

Stock	Weight	Annual return	Volatility	Price - maximum (euros)	Price - minimum (euros)
AIR LIQUIDE	1.75%	14%	26%	98.99	75.42
ALLIANZ	2.71%	2%	23%	95.43	76.67
ALSTOM	0.54%	-27%	29%	54.09	30.94
ANHEUSER-BUSCH INBEV	1.85%	18%	24%	45.85	33.99
ARCELORMITTAL	1.38%	-12%	38%	35.04	21.33
GENERALI	1.21%	-25%	29%	19.19	13.5
AXA	1.81%	-25%	41%	17.58	11.06
BASF	3.87%	28%	16%	61.73	41.35
BAYER	2.85%	-1%	23%	58.62	44.12
BBV.ARGENTARIA	2.29%	-41%	43%	13.15	7.08
BANCO SANTANDER	4.18%	-31%	45%	11.98	7.3
BMW	1.38%	85%	31%	64.8	28.65
BNP PARIBAS	3.31%	-15%	42%	59.6	41.48
CARREFOUR	1.04%	-8%	27%	41.28	30.85
CREDIT AGRICOLE	0.68%	-23%	46%	13.68	8.02
CRH	0.68%	-18%	46%	21.95	11.7
DAIMLER	2.88%	36%	32%	54.87	30.35
DANONE	1.96%	10%	21%	48.24	39.96
DEUTSCHE BANK	2.36%	-21%	34%	60.38	36.6
DEUTSCHE BOERSE	0.64%	-21%	34%	60.38	36.6
DEUTSCHE TELEKOM	2.01%	-6%	19%	10.6	8.55
E ON	2.44%	-22%	22%	29.36	21.13
ENEL	1.79%	-8%	22%	4.23	3.43
ENI	2.60%	-8%	23%	18.56	14.61
FRANCE TELECOM	1.74%	-11%	20%	17.83	14.15
GDF SUEZ	2.09%	-11%	26%	30.48	22.8
GRP SOCIETE GENERALE	1.88%	-18%	49%	52.2	30.33
IBERDROLA	1.38%	-13%	30%	6.74	4.63
ING GROEP	2.04%	6%	47%	8.16	5.51
INTESA SANPAOLO	1.60%	-36%	42%	3.2	1.97
L'OREAL	1.33%	7%	23%	87.43	71.37
LVMH	1.99%	57%	29%	128	74.87
MUENCHENER RUCK.	1.06%	4%	18%	123.2	99.74
NOKIA	1.04%	-13%	34%	11.7	6.59
PHILIPS ELTN.KONINKLIJKE	1.11%	11%	32%	26.94	20.33
REPSOL YPF	1.22%	11%	29%	21.58	15.54
RWE	0.98%	-27%	18%	68.96	47.96
SAINT GOBAIN	1.21%	1%	36%	40.17	28.49
SANOFI-AVENTIS	3.86%	-13%	22%	57.69	44.57
SAP	2.40%	15%	17%	38.4	31.11
SCHNEIDER ELECTRIC	1.94%	37%	32%	119.5	72.25
SIEMENS	5.09%	44%	28%	94.78	61.67
TELECOM ITALIA	0.64%	-11%	31%	1.15	0.89
TELEFONICA	4.18%	-13%	26%	19.82	14.88
TOTAL	5.51%	-12%	23%	46.26	35.88
UNIBAIL-RODAMCO	0.91%	-4%	29%	166.1	120.5
UNICREDIT	1.50%	-34%	43%	2.41	1.49
UNILEVER NV	2.18%	2%	21%	24.02	20.93
VINCI	1.46%	3%	28%	44.78	33.17
VIVENDI	1.48%	-3%	27%	21.41	16.28