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## **Pensions Accounting and Value Relevance**

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## **Abstract**

The importance of this research is related with the value of the value relevance literature and its contribution to accounting setters. It is indeed emphasized by the changes in IAS 19 proposed by the IASB in 2010. In this context, the primary objective of this study is to provide a literature review regarding post-retirement benefits with focus in defined benefit plans, taking into consideration the way to account for that and its relation with equity value and also the value relevance from an investor perspective within benefit plans accounting. As conclusion, we identified in previous literature that the full recognition of actuarial gains and losses in equity is more value relevant to the investor, which is according the last amendment of IAS 19, as its main proposition is the elimination of the corridor approach.

**Keywords:** Value relevance, corridor approach, defined benefit plans, IAS 19.

## **1. Introduction**

Since the European Union implemented the use the accounting standards of the International Accounting Standard Board (IASB), and consequently the use of the International Accounting Standard (IAS) 19, exchange listed companies in many parts of the world had suffered a major change in their way to account for pension plans.

In the year of 2005 these companies migrated from domestic and non-standardized account systems to a mandatory international standard. Even with this regularization of the way to account for pensions, defined benefits plan and its methodologies to account for recognition of actuarial gains and losses is still an issue, which is impacting on companies, shareholders and stakeholders worldwide.

As it is known, the financial reporting of corporation pension obligations has allowed these enterprises to defer the influence of market fluctuations on the pension plan assets and obligations in the corporation's balance sheet. This means that the balance sheet and income statement of among companies can vary hugely and it increases issues regarding comparability among them, transparency of the information and accurateness.

All these factors together have been representing a big impact on companies' financial statements, moreover on listed prices. According to Hann et al. (2007) benefits costs compromise approximately one-third of an organization's total labor costs. Thus, the relevance of this study is due to establish a better understanding of how these financial statements behave according to the different methodologies of accounting for post-retirement benefits.

In this context, the first motivation for this study is related with the relevance of the value relevance literature, in other words, to show whether and how the literature provides insights into questions of interest to standard setters. Also, a theoretical background regarding pension funds and its accountability standards will be presented.

The second main motivation to this study intends to identify and criticize previous literature about employee benefits (more specifically post-retirement benefits), providing to the reader a link between the changes overtime of the main accounting standards and, what the previous literature observed as main impacts regarding this.

Furthermore, this paper will be focused on defined benefits plans and its methods to account for the recognition of actuarial gains and losses, the costs of benefit plans and its interest rates as it involves a higher complexity, and also due to the fact that defined contribution plans have not been a wide object of study as the way to account for it does not allow many variations in the financial statements.

As conclusion of this paper, firstly, it is agreed with the relevance of the value relevance literature, therefore it is reasonable to infer that it has made major contributions to the standard setters, and also financial institutions and analysts. Secondly, this paper also expects to contribute to prior literature by comparing them with each other, showing their strengths and weakness. Thirdly, this paper agrees with the fact that the way to account for post-retirement benefits does impact the equity value of the companies. Finally, we conclude that the last amendment of IAS 19 which suggests the elimination of the “corridor” approach should be further discussed inside the academic world as all current researches are limited due to the fact that only after 2005 this account standard has been mandatory to listed companies.

This study will be organized according to the following. After this introduction, section 2 includes a brief background of the subject in question and also mentions the related standards. Section 3 describes the importance of the value relevance literature. In section 4 and 5, what has been written regarding the theme is presented, and the quality of these contributions is also discussed. In section 6, the measurement and presentation of pension obligation and other issues will be discussed. Finally in section 7, we will present our considerations regarding the topic and our recommendations for future researchers.

## **2. Background**

Historically, the social security legislation started in United States when the Social Security Act was approved by the Congress in August 14, 1935. At that time it was estimated that around half of the elderly in the US did not have the resources to be self-supporting when they retired. According to Dulebohn et al. (2009) although social security replaces about 40% of the average worker's earnings, it will decrease even more in the near future. Kramerich (1999) found that the majority of public and private companies provide their employees with pension plans as a form of compensation and it represents a massive part of the total income of aged individuals.

Mitchell and Moore et al. (1998) found that the explanation for the increase in the representativeness of pension plans in the employees' income rather than on social security is due to the fact that the employees are allowed to define their own benefits according to their own participation on the plan, and also as a result of the low interest paid for the public security.

The two main types of post-retirement plans offered to employees are: contribution plans and benefit plans.

Regarding the first one, the employer's duty is restricted to paying fixed contributions into a separate fund on behalf of the worker. The risk of this sort of pension plan is exclusively of the employee as there is no legal obligation to the company to refund the employee in case the fund does not hold sufficient money to pay the benefits back at the time of retirement.

The accountability on defined contribution plan is reasonably simple when compared to the other type. The contributions are recognized as an expense in the financial statement in the period the benefit is earned by the employee. And according IAS (19.45) *“if contributions to a defined contribution plan do not fall due within 12 months after the end of the period in which the employee renders the service, they should be discounted to their present value”*.

Under the defined benefit plans companies promise to pay their employees a benefit based on the employee's retirement age, final average income and years of service. The employer maintains a pension fund and holds the risk of investment and returns on the fund.

Regarding the accountability system, defined benefit plans are more complex than contribution plans. By definition, the amount recognized in the balance sheet should be the present value of the defined benefit obligation and calculated through the Projected Unit Credit Method.

It is important to understand that the benefit obligations recognized on the balance sheet represents the discounted present value of the defined benefit less the fair value of plan

assets, adjusted but the actuarial profit and loss not recognized and the cost of past services (IAS 19.54).

In this type of post-retirement plan the main issue for companies and shareholders is regarding the different ways to account for recognition of actuarial gains and losses.

There are three methods to account for it<sup>1</sup>:

The “corridor” method;

The Profit and Loss method – full recognition through P&L and;

Equity method – full recognition through the statement of recognized income and expense<sup>2</sup>.

Once the benefit plans are known, it is also important to provide a short background of the changes into the account standard for employee benefits.

Until 1983, no particular method to account for benefit plans was required for companies. However, in the same year the International Accounting Standards Board (IASB) issued its first standard related to employee benefits the IAS 19 – Accounting for retirement benefits in the financial statements of the employers.

In early 1995, IASB issued a discussion paper – Retirement benefit and other employee costs – which originated the Exposure Draft Employee Benefits in 1996 and a new standard in 1998.

In March 2008 IASB issued a discussion paper with preliminary views on amendments to IAS 19 with the following:

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<sup>1</sup> According to the last version of IAS 19.

<sup>2</sup> The same as note 1.

- a. The way of recognition of actuarial gains and losses for defined benefit plans;
- b. Changes related to the liabilities of benefit plans;
- c. The account system of employees benefits for employees based on contribution.

In April 2010, IASB published an exposure draft to amend IAS 19 for defined benefit plans<sup>3</sup>. This standard suffered an additional amendment in 16 June 2011 and it will be mandatory from January 2013.

The main changes to take place in 2013 are:

- a. The elimination of the “corridor” approach;
- b. Changes in the treatment for termination benefits, specifically the point in time when an entity would recognize a liability for termination benefits, and;
- c. The allocation of costs related with this matter.

In this setting, this paper will provide a literature review about these post-retirement plans and its methodologies to account for the recognition of actuarial gains and losses, if applicable. The relevance of the literature in terms of future improvements of accounting standards will be discussed and the content that has been written thus far regarding this topic will be analyzed.

### **3. The value relevance literature**

Over the last decades many papers have been dedicated to the accounting of pension plans. Ippolito et al. (1997) found that the most important development in private

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<sup>3</sup> [www.iasplus.com/en/standards/standard17/#1004ed](http://www.iasplus.com/en/standards/standard17/#1004ed)

pensions is the gradual literature shift away from defined contribution plans to defined benefit plans. This development has spawned a series of studies to explain the trend and focusing on defined benefit plans issues.

Although, according to Munnell A.H et al. (2006) in United States and United Kingdom the plans have changed dramatically, as coverage has shifted from defined benefit to defined contribution arrangements in small and mid-size corporations.

Nevertheless, this work will focus on the variety of papers dedicated to the changes of the defined benefit plans and their value relevance as pensions can be a considerable percentage of companies' liability (Severinson, 2008 and Wiedman, 2004) and a primary focus of the standards setters is equity investment (Barth, 2001).

Regarding the importance of the value relevance literature for financial accounting standard, Barth et al. (2001) found as key conclusion that the value relevance provides fruitful insights for standard setting, in contrast to the view offered in Holthausen and Watts (2001), which states that value relevance research offers little or no insight for standard setting. Additionally, Barth also explained how value relevance research addresses questions of interest to accounting standard setters, as well academic researchers and other non-academic constituents of the research.

She emphasizes that value relevance research is of potential concern to a board constituency including not only academic researchers, but also standard setters such as the IASB and regulators such as the Securities and Exchange Commission (SEC), firm managers and financial statement users.

Amir et al. (1993), Beresford et al. (1995), Lambert et al. (1996), Street et al. (2010) Lobo et al. (1989) and more recently Larson et al. (2011) also examined the relevance of

the value relevance literature for financial accounting standard setting. All these papers were related to US based accounting research and ended up with the same conclusion presented by Barth et al. (2001) and also to her previous paper<sup>4</sup>.

Nevertheless, this paper would like to emphasize Berofsord et al. (1995) which provides clear evidences that the Financial Accounting Standard Board (FASB) takes into consideration academic and non-academic research. Therefore, it is agreed that value relevance research provides insights into questions of interest to standard setters.

#### **4. Pension plans and its relation with equity**

In this section we will discuss our findings in the previous literature regarding the relationship between the different ways of accounting for benefit plans and how it is perceived by investors and financial analysts and which of the three different ways to accounting for actuarial gains or losses provides more value relevance.

In the extant literature, the first study of which we are aware that relates pension plans with equity market value of the company is Bulow et al. (1987). In the paper he believes that the market does take account of pension assets and liabilities. He provides evidence suggesting that market valuations of firms reflect implicit contractual obligations to recompense older workers amounts in excess of their marginal products and provide no support for the concept that shareholders ignore pension obligations in valuing firms.

Amir et al. (1992) used the post-retirement benefits cash payments to pensioners as released by firms in their footnotes to the financial statements, for a sample from 1984

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<sup>4</sup> Barth et al. (1998)

to 1990 in listed-companies in the U.S exchange market, to evaluate if shareholders underestimated the full effect of it on firms' values. He established that investors underestimated the full consequences of firms' promises to continue making such payments in the future.

In addition, valuing the present value of the post-retirement benefit obligation with publicly available data shows that the present-value measure is value-relevant to investors in addition to the cash payments disclosed by firms.

Barth et al. (1993) also addresses a study to examine the correlation between accounting of benefits plans and its relation to share prices, focusing on the role of pension costs components play in firm valuation. Using a data of 300 U.S. Companies from 1987 (first year of SFAS 87) to 1990, it was found that investors do not allocate the same earnings multiple to all components of pension cost and when projected-benefit obligation and the fair value of pension assets are included in a regression to explain the market value of equity, pension cost component information is redundant in explaining shares prices.

Additionally, an investigation of the fundamental relations concerning the many pension items allows estimation of the unreported quantity of the amortization of the transition asset and supports to explain the variance between the pension expense data and the pension balance sheet data. In other words, the impact of pension's costs in financial statements is not perceived in the same way by the market due to the different ways of recognition of actuarial gains and losses.

Other researchers as Eccher et al. (1996), Barth et al. (1998), Coronado and Sharpe (2003), Coronado et al. (2008) and Fasshauer and Glaum (2009) re-affirm Barth's finds

that the market tends to give more value-relevance to the pension costs in the financial statements than to the fair value in the footnotes, therefore evidencing a misvaluation of the pension costs in shares prices.

Franzoni and Marin (2006) addressed their study using SFAS 87 data and they found out that there are some evidences that the market significantly overvalues firms in the US with ruthlessly underfunded pension plans. Moreover, it was found that a portfolio of corporations with heavily underfunded plans earned small returns in contrast to a portfolio of healthier pension plans and this pattern persisted for a five year period after it. In conclusion they mentioned that investors do not pay appropriate attention to the inferences of the under-funding for future earnings and cash flows.

In a regulatory setting that allows corporations to defer recognition of the variation in the pension liability in remunerations, Franzoni and Marin (2006) settle that the influence on returns happens with delay relative to the first display of the large under-funding.

Their paper also provides indication that the underfunded plans incline to be past failures from the perspective of yields and operating and monetary performance, thereby proposing that the pension deficit arises from a trouble in satisfying funding necessities. Based on a supplementary cross-sectional investigation and descriptive evidence, Franzoni and Marin (2006) determine that it was recognized a supplementary determinate of market mispricing.

Hence, based on previous research, the relationship between equity value and the way to account for post-retirement benefits is clear. Moreover, the different ways to account for

recognition of actuarial gains and losses affect financial statements differently, and consequentially the equity value.

Relevant questions can now be addressed: How do the three recognition methods lead to different impacts in the financial statements? Which one is preferred by the investor, in other words, which one provides more value relevance?

## **5. Recognition methods and its value relevance**

According to Severison et al. (2010) and Shand et al. (2009) the settle established by the current accounting standard of firm pension obligations has permitted corporations to defer “smooth” the effect of market fluctuations on the pension plan assets and obligations that are informed in the enterprise’s financial statement. This represents that the financial position of a company’s pension plan can be informed as expressively better or worse funded than would be the circumstance whether no smoothing was used and the real assets and obligations of the pension plan were reported.

The recognition technique specified directly above is known as the “corridor” approach. Severison (2010) add that this method could bring tremendously volatile short-term effects into a company’s financial statements on as much as a quarterly basis. It also has an undesired effect when making the decision of offering employees a defined benefit pension plan. This is based on arbitrary and often changing accounting rules, rather than a decision based on the long-term financial sustainability of the pension plan and the company’s remuneration policy towards its employees.

As it is known, the actuarial gains and losses originate from changes in the value of the obligation (salary changes overtime, change of employees, discount rate, mortality rate

and so on) and with changes related to the assets. Therefore, it is one of the main explanatory reasons for the complexity of benefit plans and the higher impact of the “corridor” approach on equity value.

According to Beechy et al (2009), it is excluded the rationale which implies that the recognition of actuarial gains and losses can be compensated through the corridor approach, even though all different methods for recognition should avoid any volatility in the financial results.

For IASB and IAS 19, considering the last amendment, the best policy for recognition for actuarial gains and losses in defined benefit plans is the equity method. However, a problem remains for this case, which is where should it be recognized in the equity or not. This is the explanatory reason for IASB allowing the utilization of methodologies of recognition more accelerated than the corridor approach. The reason for the immediate recognition is that all alterations in estimations that happen in a certain period should be recognized in the same period<sup>5</sup>.

Following the new standard of the IASB, actuarial gains and losses should be part of the measurement of the liabilities (assets) of defined benefit plans and must be recognised immediately in the equity. It emphasizes the fact of recognition of all changes when they happen, which is clearly the case for actuarial gains and losses. Therefore, it explains the reason behind the last amendment of IAS 19, which eliminated the “corridor” approach.

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<sup>5</sup> Amen et al (2007) also follow the same rationale.

With the elimination of this method, there is also the elimination of the possibility of “smooth” the influence of market fluctuations on the pension plan assets and obligations that get reported in the company’s financial statement.

Picconi (2006) also found that the off-balance sheet quota of the pension plan’s funded status and the pension benefit obligations were predictive of future returns, whereas the on-balance sheet portion was not. His conclusions therefore propose that, under the corridor approach, shareholders do not precisely assess the long-term cash flow and earnings inferences of off-balance sheet pension disclosures.

Fasshauer et al. (2008) identified that the use of the corridor approach for recognition of actuarial gains or losses has less explanatory power regarding the market value than the fair value funding status and also the other methodologies for recognition. This research was based in the German Stock Exchange from 1999 to 2006.

Additionally, Fasshauer (2008) suggests IASB to move forward with its proposal to eliminate the corridor approach and require full recognition of actuarial gains and losses. He also attested that it was widely accepted not only in the United Kingdom, but also in the rest of Europe. This would bring more transparency of the effect of pensions in financial statements and also it would make IASB standard more consistent with SFAS 158.

Por and Inannucci (2006) and Beechy (2009) also contribute with the idea of accounting rules and actuarial practices allows gaps in terms of explanatory power of the equity value and both studies suggest also the full recognition of actuarial gains and losses.

Once it has been clarified the impact of the “corridor” approach in the financial statements, and how it has been aborted by the extended literature, it is interesting to

show how the recommended method for recognition of actuarial gains and losses has been discussed in the academic world.

Morais et al. (2011) addressed his research using a sample of 91 companies in Euronex 100 and also PSI General Index from 2005 to 2007. As a result he found that the equity recognition method is the one which appears to provide more value relevance to investors. In other words, that the equity recognition provides more value relevance than the “corridor” approach or the profit or loss method.

Additionally, Morais (2011) identifies that it is limited to a three year period of mandatory adoption of the current account standard, and suggests that future researchers to analyze if his findings are sustainable overtime.

Barros et al (2011) extended the previous search from 2005 to 2009 and using valuation equations he also found that the equity recognition is more value relevant than other approaches.

## **6. Other pension accounting issues**

One of the most relevant parts of this paper refers to the mensuration and presentation of the pension obligation. The current cost of defined benefit is and always has been recognized in the income statement. However, the recognition problem has to do with the cost of employees’ past service that may result from changes in benefits (for example, an increase of the benefit attributed for the entity) or introduction of benefits (in which case the existing employees are awarded benefits based on their services past).

According to many domestic accounting standards (i.e. NCRF 28 from Portugal<sup>6</sup>) it is allowed to defer the cost of past services when benefits have not yet been acquired and amortize it in straight-line during the average period in which the benefits become vested. However, it is not in agreement with the last standard issued by IASB as it does not allow any more deferring the cost of past services that have not yet been acquired.

The reason to amortize the cost of employees' past service is that they represent a motivation for future services and thus should be recognized in future periods. It is not allowed to modify the initial amortization except in the case of a curtailment or settlement.

If the cost of the past services is deferred this will impact reducing the liability. Therefore, defer the cost of past service is not in accordance with the principles of the IAS 19, which specify that the costs related with the services of employees should be recognized as an expense when they provide the service, because it has already been done by the employees. In other words, the past service cost must be recognized immediately as an expense, which makes sense for the reasons mentioned above.

Regarding the interest rates, it refers to interest liabilities and assets of the fund. According to Li et al. (2005) some national standards assuming as discount rate the high quality bonds of the company's obligation at balance sheet date, unless it is determined to use the same rate that the government uses. And this fee must be time and money coincident with the retirement benefit obligation.

This rate reflects the time value of money but not the actuarial risk and credit of the company. This is due to the fact that the IASB in the previous IAS 19 did not identify

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<sup>6</sup> This standard was made in accordance with the previous IAS 19.

the expected rate of return of an asset's portfolio as a relevant and reliable indication of the risks associated with the obligations, so the rate is without risk.

The rate also should not reflect the credit risk of the company as the one with the greatest credit risk would recognize a smaller obligation (the rate would be lower because the risk would reduce the rate).

The interest cost is calculated by the rate before the beginning of the period by the present value of the obligation. A significant increase in discount rates substantially reduce the obligation otherwise substantially increases the obligation. Por and Iannuci (2006) found the same conclusion.

Also regarding to the domestic standards and to the assets of the plan, the expected return is based on market expectations at the beginning of the period for return on assets of the plan. The expected return is based on an estimated rate of return on plan assets and reduces the expense recognized in the income statement (which usually is related with spending on staff). The increase in the expected rate of return reduces the liability (such as increasing the discount rate reduces the requirement and thus the liability).

Beechy et al. (2009) presents an alternative to the measurement of the obligation, which is the use of the settlement price instead of the value in use. However, as there are many different approaches to do the first one, the current method remains in use.

The problem of using two different rates is that the obligation is measured by a rate that is normally lower than the asset when actually it should be linked (refer to the same fund). For the IASB and IAS 19 (the old one), the measurement of the obligation should be independent of the measurement of assets of the plan.

But, in the IASB's new standard, the discount rate is determined in the same way (without risk, at the balance sheet date, high quality bonds unless there is a deep market in which they should use government bonds) but is applied to liabilities (assets) of defined benefit and determined at the beginning of the period.

This change is due to the fact that the IASB considers that there is no separation between the obligation and the asset but an amount payable by the company to the fund or employees, which is the interest cost to finance the company.

The previous IAS 19 did not report where the interest should be submitted, so it could be presented as operational or financial costs. The new standard clearly states that the interest must be done in accordance with IAS 1(Presentation of financial statements) and indicates that the financial expenditure should be shown separately.

## **7. Conclusion**

The way to account for benefit plans is changing and the “corridor” approach, which is one of the methods for recognition of actuarial gains and losses, is no longer valid according to the last amendment of IAS 19, which is going to be put in place in January 2013. This will represent a major change as, for instance, according to Fasshauer et al (2009), only in Portugal, 67% of the companies with benefit plans using the “corridor” approach.

The first conclusion of this paper is related with the value of the value relevance literature. As it was shown based on many previous researches, the value relevance research is an active provider in this research and also it has made major contributions to financial accounting standard setters. Therefore, it also gives more emphasis to the importance of this work.

Secondly, the link between Pensions and Equity value was analysed. In conclusion, we found that there is evidence of this relationship. However, it can vary according to investors’ perceptions, how it is shown in financial statements and also depending on the way to recognize for actuarial gains and losses.

Thirdly, it was focused in this paper how the different methods of recognition for actuarial gains and losses impact the equity value, the measurement of the costs of benefit plans and its interest rates. Consistent with the previous literature, the full recognition of actuarial gains and losses in equity is more powerfully related with share values than the other approaches. Moreover, the elimination of the “corridor” approach is an attempt of IASB to bring further transparency of the outcome of pensions in

financial statements and also it would make IASB standard highly consistent with SFAS 158. As it was also noticed in the previous literature, the weak association between the “corridor” approach and the company’s equity value is due to the lack of transparency and the possibility “smooth” the effect of market fluctuations on the pension plan assets and obligations that are informed in the enterprise’s balance sheet.

Regarding the measurement of the obligation and the interest return on assets, it has revealed that the IASB began to use the same rate, assuming that the investment on liabilities is liquid. In terms of presentation, there is now a clear separation between operational expenses (cost of defined benefit) and financial expenses (interest liabilities net assets).

Finally, this research comes to an understanding with the previous literature regarding the way of recognizing actuarial gains and losses impact the equity value as described throughout this paper. Nevertheless, we understand that further research should be dedicated to the last amendment of the IAS 19, principally to the elimination of the “corridor” approach.

This final remark is due to the limitation that was found in few of the last researchers involving this theme as in order to be consistent with the value relevance it must be sustainable over time and based in the new environment that is going to be created after the new IAS 19 takes place in January 2013.

Additionally, the future literature should explore and confirm how this improvement (elimination of the “corridor” approach) will make things easier for users of financial statements to comprehend how defined benefit plans affect an entity’s financial position, performance and cash flow.

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