

## **Conservatism of Intellectual Capital and Relevance of Earnings**

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### **Abstract**

*This paper critically reviews the conservatism of accounting (by applying M/B value ratio) to pave the avenue of encouraging and the recognition of intellectual capital in financial reports of firms. This paper justifies this assessment in order to extend recognition and disclosure of intellectual capital to increase value relevance of earnings and also decrease the gap between market and book value. Review of this paper suggests that generally accepted accounting principle (GAAP), accounting standards and conservative of accounting prevent the recognition of intellectual capital. These standards should be improved to fulfill the stipulations of the new economy. Therefore, this paper proposes a model that evaluates the impact of conservatism of intellectual capital on relevance of earnings.*

**Keywords:** Conservatism of Intellectual Capital, Non-recognition of Intellectual Capital, Relevance of Earnings

### **1. Introduction**

The changing trends from traditional economy (land, labor and financial) to knowledge-intensive economy during the last two centuries have made, service based industries take the major share in the value creation process especially in developed societies. In knowledge-based economy, intellectual capital plays vital role in firm's overall growth and becomes the major source of competitive advantage over competitors. Brooking (1996) stated that intellectual capital almost represents 62% a company's value. However, it is very difficult to determine and calculate the accurate value addition by intellectual capital to firm and mostly in traditional accounting reporting; the most of the elements of intellectual capital have not been recognized. Therefore, non-recognition of intellectual capital leads to the decrease in value relevance of earnings (Collins, Maydew, and Weiss, 1997; Francis and Schipper, 1999; Lev and Zarowin, 1999) and also increases the gap between market value and book value of firms (Amir and Lev, 1996; Brennan, 2001; Holland, 2003). It is a high matter of concern for accounting researchers why traditional accounting standards like GAAPs discourage the recognition of many intangible assets that make financial information less relevant (Collins *et al.*, 1997; Francis and Schipper, 1999; Lev and Zarowin, 1999). Hence, the answer to question why GAAP and accounting standards do not allow recognizing of intellectual capital as asset is uncertainty and risk of the intangible's expected future benefits (Hendriksen, 1992; Shi, 2002). Consequently, it can be said that conservative nature of financial reporting does not allow recognition of intellectual capital as an asset. The following literature review discusses a model that evaluates the impact of conservatism on relevance of earnings.

### **2. Literature Review**

#### **2.1 Intellectual Capital**

##### **2.1.1 Relevance of Earnings**

Financial statement is one of the main important sources of information that is considered by investors for evaluation of stock. According to FASB No. 2, qualitative characteristics of accounting information, relevance and reliability are two primary criteria that make accounting information useful for decisions. Accounting information is relevant "if it is capable of making a difference in a decision" (FASB No. 2 para 47).

Financial statement information is relevant if it is able to confirm or change investors' expectations regarding the value of stock (Lubberink, 2000). However, many researchers have argued that the traditional financial statement provides limited relevant information particularly relevance of earnings to investors due to non-recognition of intellectual capital (Collins *et al.*, 1997; Francis and Schipper, 1999; Lev and Zarowin, 1999) and non-recognition of intellectual capital also increases the gap between market value and book value of the firm (Amir and Lev, 1996; Brennan, 2001; Holland, 2003). Drucker (1999) stated "The most valuable asset of a 20<sup>th</sup> century company was its production equipment. The most valuable asset of a 21<sup>st</sup> century institution (whether business or non-business) will be its knowledge workers and their productivity". Brooking Research institute (1996) pointed out that 62% value of the company was represented by its physical capital and 38% intellectual capital. But in 1992, physical capital decreased to 38% (62% intellectual capital). Here, it is obvious that intellectual capital has substantial impact on financial information especially with respect to firm's earnings. Therefore, for most firms, intellectual capital is identified as an integral part of value-creating process (Beattie and Thomson, 2007; Holland, 2003).

Lev (2001) noted that the average market-to-book ratio value was from 1.0 to 6.0 from 1997 to 2000 for S&P 500 companies due to intellectual capital. Beattie and Thomson (2004) suggested that an average market-to-book ratio was 2.52 for the FTSE 100 firms in the year 2002/2003. In other study, Guthrie and Lev (2004) revealed that the mean market-to-book value for the S&P 500 firms was 4.5 for the year 2003. The results of these studies show a significant gap between book and market values of firms and this gap was only because of intellectual capital. Francis and Schipper (1999) and Lev and Zarowin (1999) in their studies based on U.S. data reported that value relevance of earnings have declined over the years and also stated that recognizing of R&D costs as expense has led to this decreasing trend of relevance of earnings. Recent studies have shown that capitalization of intellectual capital increases the value relevance of earnings instead of recognizing it as immediate expense (Aboody and Lev, 1998; Ahmed and Falk, 2006; Lev and Sougiannis, 1996). Goodwin and Ahmed (2006) investigated whether the value relevance of earnings has declined in Australia over time i.e. 25 years from 1975 to 1999. The study indicated that firms capitalized intangible assets had increasing earnings value relevance. Swartz *et al.* (2006) examined whether intellectual capital (IC), together with information from the financial statement can explain the market value of firms (share prices).

They used Olson's (1995) model to measure relevance of market value of firms. The results of the study showed that abnormal earnings, the net book value of assets, abnormal dividends and intellectual capital all prepare information relevance to the share prices three months after year (market price in an emerging market environment). Reporting of research and development cost (R&D) has increased the value relevance of the market price on EPS and book value (Reinita, 2007). This study noted that in the U.S. GAAP all R&D costs must be immediately recognized as expenses and the UK and in almost all other countries capitalizes of development costs and expenses off the research costs. The study concluded that research and development costs (R&D) increase the value relevance of the market price of EPS and book value. Yu *et al.* (2009) examined the value relevance of intellectual capital by using Ohlson's (1995) valuation model and Dechow *et al.* (1999) framework in Taiwan's information technology (IT) companies. The results of this study showed that: first, IT companies of Taiwan are more probable to focus on human and process capital than on innovation and relational capital; second, there is value relevance between intellectual capital and IT companies' business valuation.

### **2.1.2 Conservatism of Intellectual capital & Balance Sheet**

Although, many researchers have criticized the immediate expensing of intangible assets and suggested the matching of costs with future benefits i.e., investment in intangible assets should be capitalized (Ahmed and Falk, 2006; Bubblitz and Ettredge, 1989; Hendriksen, 1992; Shi, 2002), most intangible assets is uncertainty and risk of their expected future benefits, it is difficult to identify intangible assets. Some empirical studies have noted the necessity of intangible assets being incorporated in the financial statement. For instance, Bubblitz and Ettredge (1989) examined the association between R&D and advertising with future earnings. They found that R&D expenditure related to subsequent earnings, while the impact of advertising is short-lived and is limited to an average of two years. Based on this result, they concluded that R&D expenditure shall be capitalized and amortized, whereas advertising shall be expensed. Stickney *et al.* (2009) stated that there are two main issues related to the measurement and recognition of intangible assets. First, whether they shall be capitalized when they produce sufficient future benefits, or shall be expensed if they do not generate future benefits. Second, if they are recognized as intangibles, how should they be amortized over their service life? Most studies claimed that accounting system should treat intangible assets like any tangible asset (Lev and Zarowin, 1999) but studies also found that there are significant differences between intangible assets and tangible assets (Hendriksen, 1992).

Hendriksen (1992) pointed out that main reason that impedes the recognition of intangible asset is uncertainty associated with the future benefits expected from certain tangible assets. Thus, he recommended that the criteria used for the recognition and valuation of tangible assets may not be applied for intangible assets. Lin (2008) investigated the association between Research and Development (R&D) investment, Research and development capability, financial performance, and the company' market value in three stages, namely growth, mature, and stagnant. This study chose 304 publicly listed IT companies in Taiwan. The finding of the indicated study showed that R&D investment and R&D capability have a significant and different effect on market value of company through financial performance of IT companies in different life cycle stages. Capitalization and amortization of software development costs lead to more variable earnings and larger analysts' forecast errors (Shi, 2002). The study investigated the effect of software development cost on earnings by Standard Financial Accounting Statement No. 86 (1985) and compared it with Standard Financial Accounting Statement No. 2 (1974).

The study mentioned two important differences between capitalization and amortization of tangible and intangible assets. They are: first, an investment in tangible assets is capitalized is certain, while a software development venture is very uncertain and has considerable variation across projects; second, the amortization schedule of tangible assets is more certain but the amortization schedule of intangible assets is less predictable. The study revealed that the risk and uncertain capitalization and amortization of software development lead to more variable earnings and larger analysts' forecast errors. Taking into consideration the cases stated above, the study concludes that conservative accounting standards and accounting practices should be modified in order to fulfill the stipulations of new arena, which will pave the avenue to recognize intellectual capital. Therefore, researchers, practitioners, and accountants must seek to solve this issue by extending the researches which search for value intellectual capital. Hence, in order to achieve this aim this paper critically proposes a model that shows GAAP, accounting standards and conservative of accounting prevent companies from recognizing intellectual capital which leads to decreased quality of information.

### **3. Proposed model for measuring the relationship between conservatism of IC and relevance of earnings**

According to International Accounting Standards (IAS) No. 38 an intangible asset shall be recognized if, and if:

- a) "It is probable that the expected future economic benefits or service potential attributable to the asset will flow to the entity; and
- b) The cost or fair value of the asset can be measured reliably".

And also according to FASB No. 2, conservatism is a "prudent reaction to uncertainty in order to try to ensure that uncertainties and risks inherent in business situations are adequately considered". A firm should evaluate the probability of expected future economic benefits using rational and supposition to show management's best estimate of the set economic situation that will exist over an asset' useful life. The reason for recognizing intangible assets as assets is because they are like tangible assets; they are expected to have future economic benefits for the firms.

Meanwhile, GAAP's treatment is to capitalize all purchased or acquired intangible assets if those assets have criteria of assets recognition but if such assets are internally generated or homegrown, than the treatment of accounting is to charge them to expenses. There is no critical question when the intangible assets are acquired or purchased because accounting practice and accounting standards have recognized them as assets. The critical question arises here as to why GAAP and accounting standards do not allow the recognition of such intellectual capital as assets, if it is developed or generated internally. Hence, due to different treatments of accounting for intangible assets, accounting information will lose characteristics of qualitative. In summary, the answer to the question why GAAP and accounting standards do not allow the recognizing of intellectual capital as assets is uncertainty and risk of intangibles' expected future benefits (Hendriksen, 1992; Shi, 2002). On the other hand, the difference between expected future benefits of tangible and intangible assets is in term of certainty and risk of tangibles' expected future benefits while, there is uncertainty and risk of intangible' expected future benefits. Hence, the paper suggests that conservative nature of financial reporting does not allow the recognition of intellectual capital as an asset. Till now, we find that conservatism has an essential role to recognize intellectual capital (intangible assets) and it is the main reason for creating the gap between market value and book value and also reducing the relevance of earnings over time.

Accounting conservatism literature posits two types of accounting conservatism; (1) ex ante conservatism; and (2) ex post conservatism. Ex ante conservatism is also called unconditional, accounting-based, and news-independent conservatism. Ex ante conservatism arises from the application of GAAP and accounting standards that reflects the reduced book value of net assets (primarily due to unrecognized intangible assets) such as immediate expensing of research and development (R&D) expenditure.

The effect of this kind of conservatism (ex ante conservatism) on earning streams might be more persistent and therefore, investors are more able to predict the effect of ex ante conservatism on current-period and future earnings following the accounting policy. The second type of conservatism is ex post conservatism that is also called conditional conservatism, marked-based, and news-dependent conservatism. This kind of conservatism is associated with the more timely recognition of bad news than of good news. A notable example of ex post conservatism is lower-of-cost-or-market (LCM) rule. Therefore, the effect of this kind of conservatism on earnings streams might be less predictable and persistent. In this part, we are going to discuss about ex ante conservatism because we want to determine out the role of application of GAAP and accounting standards on whether should be recognized.

Ex ante conservatism, an accounting based conservatism was suggested by Falthem and Ohlson (1995). Recent empirical researches have suggested that the increase in market-to-book value ratios over time is due to non-recognizing intangible assets such as research and development expenditure (R&D) and human resources (Amir and Lev, 1996; Beaver and Ryan, 2005; Ohlson and Zhang, 1998). These studies used the opening market-to-book and (M/B) as a proxy for ex ante conservatism. Amir and Lev (1996) documented that the increase in the market-to-book value ratio over time is due to failure of recognizing intangible assets, such as R&D expenditure and human resource. They noted that the high-tech industries, such as telecommunication, biotechnology, and software have heavily invested in intangible assets. Because of traditional accounting practice, these investments are recognized as expenses in financial reporting. Therefore, the earnings and book value are unrelated to market values.

Givoly and Hayn (2000) also used sets of measure to evaluate the degree of accounting conservatism, namely: (1) CFO-to-Assets ratio; (2) earning-return association; (3) Skewnes of earnings; (4) variability of earnings; (5) Market-to-Book ratio. They utilized M/B ratio as a proxy for the degree of accounting conservatism. Gioly and Hayn (2000) analyzed data from 1968 to 1998 of 896 companies. Their result showed that M/B ratio has decreased from 2.0 in the 1968 to 1.0 in the 1980 and also the ratio has increased from 1.0 in the 1980 to 3.5 in the 1998. As the result reflects that the observed variation in the Market-to-Book ratio over time may show a change in the market expectations of growth. Stober (1996) used the M/B ratio to measure accounting conservatism. The author concluded that there is an association between conservative bias in accounting book values to market value. Beaver and Ryan (2005) stated that unconditional (ex ante) conservatism and conditional (ex post) conservatism are interrelated and have a negative association with each other. The authors also found that the empirical evidence on conditional conservatism without controlling for unconditional conservatism is biased because unconditional conservatism which is able to restrict the opportunistic conditional conservatism.

However, as mentioned above following by Amir and Lev (1996), Beaver and Ryan (2005), Feltham and Ohlson (1995), Ohlson and Zhang (1998) we will use Market-to-Book (M/B) value ratio to measure conservatism of intellectual capital. This paper will evaluate the impact of conservatism on relevance of earnings. Therefore, the following proposed model will be employed to evaluate the relationship between conservatism of intellectual capital and relevance of earning.

$$P_{it} = \alpha_0 + \beta_1 E_{it} + \alpha_2 BV_{it} + \beta_3 \frac{M}{B_{it}} + \varepsilon_{it}$$

Where:

$P_{it}$  = stock price of the firm at the end of year t+3;

$E_{it}$  = earnings per share of firm for year t;

$BV_{it}$  = book value of firm's common equity per share;

$\frac{M}{B_{it}}$  = the market value and the book value of firm' equity; and

$\varepsilon_{it}$  = an error term.

#### 4. Conclusion

Many researchers have documented that the non-recognition of intellectual capital has led to reduced relevance of earnings over time as the world economy has become knowledge intensive economy (Brown, Lo, and Lys, 1996; Chang, 1998; Collins *et al.*, 1997; Francis and Schipper, 1999; Lev and Zarowin, 1999). However, application of GAAPs and accounting standards has led to this decreasing in relevance of earnings as well as non-recognition of intellectual capital (Amir and Lev, 1996; Brennan, 2001; Holland, 2003; Lev, 2001).

Moreover, GAAP and accounting standards do not allow recognizing intellectual capital as asset because of uncertainty and risk of intangibles' expected future benefits (Hendriksen, 1992; Shi, 2002). We came to know that conservative nature of financial reporting does not allow recognizing intellectual capital as an asset. We do not claim that conservatism of intellectual capital would result in guaranteed decrease of relevance of earnings. We conclude hereby suggesting that examination of the relationship between conservatism of intellectual capital and relevance of earnings would make researches more meaningful in the future.

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