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THE VALUATION OF INTANGIBLES ASSET IN SMES♣

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Introduction

Whether information on intangible assets reported under current financial reporting requirements conveys information that is relevant to market participants ‘ valuation of firms’ equity has long

♣ Even if this work is the result of a common effort Cristiana Parisi can be considered the author of the first two paragraph and Paola Rossi of the last three.

been a question of interest to accounting policymakers and researchers.

At more general level, financial statements often have been criticized for failing to reflect differences in the uncertainty associated with different assets. The balance sheet does not differentially weight assets that differ in the levels of uncertainty associated with their value amortization expense. These results support the current requirement related future economic benefits and their related costs. In that intangible assets be reported in firms' balance sheets.

However, addition, the income statement does not differentially weight they do not support the current requirement that intangible assets be different revenue and expense items that have unequal degrees periodically amortized to reflect the assumed decline in their value.

Most valuation models, however, indicate that value of an asset is inversely related to the uncertainty of the associated future benefits expected from that asset (Robichek and Myers, 1966; Rubinstein, 1973; Epstein and Turnbull, 1980). This relationship between uncertainty and asset value is ignored in most balance sheet and income statement. This study examines the relationship between the reported value of intangible assets, and firms' equity market values in the balance sheet. It is especially relevant to intangible assets motivated by the accounting for intangible assets required by because of the significantly greater uncertainty associated with the amount and timing of their future economic benefits.

Egginton (1990) and Hodgson, Okunev, and Willett (1993) indicated that flat rate amortization (e.g., straight-line amortization over 40 years) of a particular type of intangible asset across all firms ignores potentially significant economic differences, thereby resulting in the periodic decline in the value of intangibles asset being reported in the income statement with considerable error. The periodic consumption of an intangible asset depends on the nature of the asset, its economic life, and the pattern of consumption of its future economic benefits.

Unlike tangible assets, there is considerably greater uncertainty involved in determining lifetime duration during which the asset's economic benefit will be consumed and the periodic reduction pattern of the asset's service potential, because it is unclear what the specific benefit is. This greater degree of uncertainty results in a reduction in the accuracy amortization expense related to intangible assets differently of the amortization of the intangible asset that is reported in the income statement.

We provide empirical evidence that is relevant to the controversies and criticisms discussed above. We examine whether the market valuation of intangibles assets and amortization expense differs from its valuation of other balance sheet items and income statement items, respectively.

The results of this analysis provide evidence in the valuation implications of financial statements failure to reflect differences in the levels of uncertainty across their different elements.

1. Literature Review

Under Italian Accounting Principle n. 24, intangibles assets are accounted for in a manner similar to the accounting required for property, plant and equipment. An intangibles asset is recorded at historical cost and amortized over the period that the firm expects to benefit from its use.

However, unlike fixed asset, the uncertainty in the degree and timing of future benefit expected from intangibles assets is considerably greater. Because, of the higher levels of uncertainty associated with future benefits to be derived from intangibles assets many practitioners and academics have suggested that such expenditures should be written off in the period in which they are incurred. This suggestion is consistent with valuation models, which indicate that the value of an asset will approach zero as the level of uncertainty of its future economic benefits approaches infinity.

Whether the higher level of uncertainty associated with the benefits from intangible assets is significant enough to cause the market to discount those benefits more than it does for other asset benefit streams is a question that can be empirically investigated.

The continuing controversy surrounding the accounting for intangibles assets has drawn the attention of academic researchers. Much of the research has focused on issues related to goodwill accounting, which is the largest intangible asset for most firms.

Studies by Amir, Harris, and Venuti (1993), Chauvin and Hirschey (1994), and McCarthy and Schneider (1995) reported a significant positive relationship between goodwill and the market value of a firm.

Jennings, Robinson, Thompson, and Duvall (1996) empirically investigated the relationship between market equity values and purchased goodwill. Consistent with earlier findings, their results indicate the market values purchased goodwill as an asset. However, they find little evidence of a systematic relationship between goodwill amortization and firms' market values.

This results from the considerable amount of uncertainty associated with estimating the period over which the economic benefit will be realized and the pattern of reduction of the asset's economic benefit.

An alternative way of stating this is that the high levels of uncertainty associated with future economic benefits from intangibles assets resulting amortization measures that contain large amount of error. While errors in measuring amortization expense also will affect the reported asset value on the balance sheet , the effects of such errors will not impact balance sheet measures as significantly as they do income statement measures. There are two reasons for this.

First, the size of the error resulting from incorrectly measuring amortization expense is relatively smaller for the reported income statement expense.

Second, to the extent that errors in measuring amortization expense are not highly correlated over time, the cumulative error is likely to be smaller than any single period's error.

Therefore, a cross-sectional regression approach such as that issued by Jennings, Robinson, Thompson and Duvall (1996), is likely to show significant relationships between market values and reported balance sheet goodwill assets but not between market values and reported income statement goodwill amortization expense.

Choi, Kwon, Lobo (2000), provide empirical on the relationship between the reported value of intangibles assets, the equity market values. This relationship are examined using a matched pair portfolio analysis and multiple regression analysis that has been used in prior research on this topic. The results indicate that the financial market positively values reported intangibles assets. Furthermore, consistent with theoretical predictions, the market's valuation of a dollar of intangible asset is lower than its valuation of other reported assets. The result also indicate that, although the market values amortization expense differently from other expenses reported in they income statement, it does not negatively value amortization expense. These results support the current requirement that intangibles assets be reported in firms balance sheets.

The SMEs tend to be thought of as a homogeneous group, especially by governments. However, this hides the great difference in size, structure and purpose that pertain in the sector. Defining the SME sector, and particularly small business, is fairly difficult, as there are

differences in what is appropriate to describe as ‘small’ in different industries (Burns, 2001; Storey, 1994). The main criteria that predominate to define the SMEs sector are the number of employees, turnover and the balance sheet total (Burns, 2001). The European Union definition for small- micro- and medium-sized enterprises provides the basis for this research work (Table 1).

Table 1: EU definitions for micro-, small- and medium-sized enterprises

<i>Criterion</i>	<i>Micro</i>	<i>Small</i>	<i>Medium</i>
Max. number of employees	9	49	250
Max. annual turnover	n/a	7 million €	40 million €
Max annual balance sheet total	n/a	5 million €	27 million €
Max. % owned by one, or several enterprises not satisfying the same	n/a	25%	25%

Other definitions include the OECD, which uses employee numbers with slightly different criteria: micro-firms having fewer than twenty employees, small twenty to ninety nine and medium a hundred to two hundred and ninety nine employees. Employee size is considered the most useful discriminator in the context of accounting research (Burns, 2001; Storey, 1994). The EU definition provides a good basis for addressing accounting research issues in general for the maximum homogeneity in SME type.

2. Methodology and Hypotheses

We test one hypotheses in this study. We examine whether reported amount for intangibles asset are value relevant in the SMEs quoted in the Italian Stock Exchange and we test this hypotheses by using the regression approach.

H_1 = The reported amounts for intangible assets are relevant in the SMEs quoted in the Italian Stock Exchange.

3. Data, Sample Selection

4. Empirical Results

We first estimate the market value associated with reported intangible assets. We then examine the impact of reported market amortization expense on firms' market values.

4.1 Test of balance sheet hypotheses

We estimate the following regression model to estimate the relation between reported intangible assets and market value:

$$MV_{it} = \beta_0 + \beta_1 ABPI_{it} + \beta_2 PPE_{it} + \beta_3 IA_{it} + \beta_4 LIAB_{it} + e_{it}$$

where MV is market value of common equity measured at the fiscal year end, ABPI is the book value of total assets minus plant, and equipment and intangible assets, PPE is the book value of property, plant, and equipment, IA is the book value of intangible assets, and LIAB is the book value of sum of liabilities plus book value of preferred stock.

Each of the above variables is scaled by the beginning of year book value of total assets to reduce potential problems resulting from heteroskedasticity.

Our Model is estimated using 23 firm-year observations with available data over the period of study.

The results of estimating model 1 are reported in Table 2.

Coefficient	Estimate	White T	P> t
B ₀	-0,290	-0,856	0,393
B ₁	4,235	32,019	< 0,0001
B ₂	-0,193	-0,508	0,612
B ₃	2,005	2,728	0,007
B ₄	-2,465	-4,502	< 0,0001

We indicate that there is a strong relation between the market values of equity and reported book values of assets and liabilities.

The coefficients on the asset variables, b₁ and b₃, are all significantly greater than zero while b₂ is not significantly and the coefficient on the liabilities variable is significantly negative.

Our result is not consistent with Jennings, Robinson, Thompson, and Duvall (1996) and McCarthy and Schneider (1995), because our results also show that the coefficient on IA is less than the coefficient on ABPI., therefore the future benefits associated with IA to be more uncertain than the future benefits associated with ABPI.

Conclusions

Financial reporting of intangible assets has long been a source of controversy. Whether reporting of intangible assets and their related amortization expense provides information that is relevant to market participants' valuation of firms' equity has been a question of continuing debate among accounting policymakers and academics. This study provides empirical evidence on the major issues of that debate.

The empirical results based on regression analyses indicate that the financial market positively values reported intangible assets on the balance sheet.

The results of this study suggest that the current principle and the periodic amortization of intangible assets be seriously questioned. One suggestion is that amortization expense be based on assessed uncertainty in the degree and timing of future benefits expected from each intangible asset.

References

- AA.VV., 2003, Intangibles: metodi di misurazione e valorizzazione, *Quaderno AIAF* n, 1-72.
- Aboody D., B. Lev, 2000, Information asymmetry, R&D and insider gains, *The Journal Of Finance* 45, 2747-2766.
- Barth M. E., R. Kasznik, 1999, Share repurchases and intangible assets, *Journal Of Accounting And Economics* 28, 211-241.
- Brealey R. A., S. C. Myers, 1993, Principi di finanza aziendale, McGraw-Hill libri Italia.
- Brunetti G., V. Coda, F. Fagotto, 1990, Analisi, previsioni, simulazioni economico finanziarie d'impresa, Etas libri, Milano.
- Burns, P (2001), *Entrepreneurship and small business*. Palgrave, Hampshire, UK.

- Chan L. K. C., J. Karceski, J. Lakonoshok, 1998, The risk and return from factors, *The Journal Of Financial And Quantitative Analysis* 33, 159-188.
- Chan L. K. C., J. Lakonoshok, 1992, Robust measurement of Beta risk, *The Journal Of Financial And Quantitative Analysis* 27, 265-282.
- Chen A. H., J. W. Kensinger, J. A. Conover, 1998, Valuing flexible manufacturing facilities as option, *The Quarterly Review Of Economics And Finance* 38, 651-674.
- Choi W. W., S. S. Kwon, G. J. Lobo, 2000, Market valuation of intangible assets, *The Journal Of Business Research* 49, 35-45.
- Gourieroux C., A. Monfort, 1995, Statistics and econometric models, Cambridge University Press.
- Grojer J. E., 2001, Intangibles and accounting classifications: in search of a classification strategy, *Accounting, Organization And Society* 26, 695-713.
- Guatri L., 1991, La teoria di creazione del valore: una via europea, EGEA, Milano.
- Guatri L., 1994, La valutazione delle aziende: teoria e pratica dei Paesi avanzati a confronto, EGEA, Milano.
- Guatri L., 1997, Valore e intangibles nella misura della performance aziendale: un percorso storico, EGEA, Milano.
- Guatri L., 1998, Trattato sulla valutazione delle aziende, EGEA, Milano.

Hodgson A., J. Okunev, Willett R., 1993, Accounting for intangibles: a theoretical perspective, *Accounting and Business Research* 23, 138-150.

Jennings R., Robinson J., Thompson II R. B., Duvall L., 1996, The relation between accounting goodwill numbers and equity values, *Journal of Business Finance & Accounting* 23, 513-533.

Klock M., P. Megna, 2000, Measuring and valuing intangible capital in the wireless communications industry, *The Quarterly Review Of Economics And Finance* 40, 519-532.

Lev B., 1974, On the association between operating leverage and risk, *The Journal Of Financial And Quantitative Analysis* 9, 627-641.

Lev B., D. Pekelman, 1975, A multiperiod adjustment model for the firm's capital structure, *The Journal Of Finance* 30, 75-91.

Lev B., Deng Z., 1997 The valuation of acquired R&D, Working Paper, *Accounting Department, New York University*, www.apogeonline.com.

Piccarreta R., M. Mezzetti, 2002, *Statistica descrittiva, esercizi risolti: guida alla risoluzione con Excel*, EGEA, Milano.

Reilly R. F., 1996, The valuation of intangible assets, *National Public Accountant* 41, 26-32.

Reilly R. F., R. P. Schweihs, 1999, *Valuing intangible assets*, McGraw-Hill, New York.

Stame N., 1999, Small and medium enterprise aid programs: intangible effects and evaluation practice, *Evaluation and Program Planning*, 22, 105 -111.

Storey, D. (1994), *Understanding the Small Business Sector*,
Routledge, London, UK.

Zanda G., M. Lacchini, T. Onesti, 2001, *La valutazione delle aziende*,
Giappichelli, Torino.