Accounting for Intangibles: A Literature Review

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We cannot have financial reporting and disclosure constraints that slow the pace of progress in capital markets, decrease the rate of reduction in the cost of capital, or limit innovation. The next step collectively is ours.

Steven M.H. Wallman [1995, p. 89].

1.0 INTRODUCTION

The purpose of Financial Accounting is to provide users of financial statements with information that is useful for efficient decision making. According to the FASB [1978, par. 34], financial reporting should provide information that is useful to present and potential investors and creditors and other users in making rational investment, credit, and similar decisions. Consequently, any event that is likely to affect a firm’s current financial position or its future performance should be reported in its annual accounts.

During the last two decades we have progressively moved into a knowledge-based, fast-changing and technology intensive economy in which investments in human resources, information technology, research and development, and advertising have become essential in order to maintain the firm’s competitive position and ensure its future viability. As Goldfinger [1997] suggests, the source of economic value and wealth is no longer the production of material goods but the creation and manipulation of intangible assets. In this scenario, firms feel a growing need to make investments in intangibles on which the future success of the company is based, but that in most cases these investments are not reflected in the balance sheet due to the existence of very restrictive accounting criteria for the recognition of assets and their valuation.
As a consequence, financial statements are becoming less informative on the firm's current financial position and future prospects because they provide reliable but not relevant estimates of the value of companies. A sign of the loss of relevance of accounting information is the increasing gap between the market value and the book value of equity of companies in financial markets.\(^1\) Lev and Zarowin [1999] have documented a significant increase in the market-to-book ratio of US firms, from a level of 0.81 in 1973 to a level of 1.69 in 1992 (which means nearly 40% of the market value of companies is not reflected in the balance sheet). In their view, this represents not only a revolutionary change in the process of economic value creation, but also a decline in the value relevance of traditional financial measures. In other words, the traditional accounting model, developed to fit firms whose activity is primarily of a manufacturing or mercantile nature, needs to be modified or at least broadened to reflect intangibles, so as to enhance the usefulness of accounting information.

In order to provide the users of financial statements with relevant information for investment and credit decision making, standard setting bodies should develop guidelines for the identification of intangible elements, a set of criteria for their valuation and adequate standards for financial reporting.\(^2\) This paper intends to provide a starting point for that endeavor by reviewing the literature published to date in three areas: (i) the economic nature, definition and classification of intangibles, (ii) the relevance of intangibles for investment and lending decisions, and (iii) the ways in which the current accounting model may be modified in order to provide useful information on the determinants of the firms' financial position in their financial statements.

The following section reviews studies on the economic nature of intangibles, discusses some of the definitions proposed in the accounting literature, and addresses the issue of the classification of intangibles. Section three deals with the recognition, measurement and depreciation of intangibles. Section four reviews the empirical literature that has analyzed the relevance of some intangibles for the purposes of firm valuation and credit decision making. Section five discusses the implications of the empirical evidence reviewed in the previous sections for the standard setting process. Finally, section six summarizes and presents some concluding remarks.

### 2.0 THE ECONOMIC NATURE OF INTANGIBLES

Intangibles have been extensively analyzed in the economic literature within the framework of the economics of innovation\(^3\). However, there does not seem to be an agreement on issues such as their economic nature, definition and classification, the way in which they affect the value of companies, or the criteria that should be adopted for their recognition, measurement and depreciation.

Technological change has usually been analyzed using the Schumpeterian trilogy that divides the technological change process into three stages: invention (research leading to the generation of new ideas), innovation (development of new ideas into marketable products) and diffusion (disclosure of the products across the market).

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\(^1\) The evidence presented in Eccles and Mavrinac [1995], Lev and Zarowin [1999], Amir and Lev [1996] and García-Ayuso, Monterrey and Pineda [1997] indicates that the lack of relevance of accounting information may differ significantly across industries, firm growth categories and size.

\(^2\) The Financial Accounting Standards Board has recently launched a project intended to analyze the information needs of the users of financial statements regarding intangible assets.

\(^3\) Cohen and Levine [1989] provide an extensive review of the economic literature published in this area of research until the end of the 1980's.
Schumpeter [1942] held stated that innovation is a fundamental source of wealth. Currently, more than ever, firms need to allocate growing amounts of resources to Research and Development (hereafter R&D) in order to achieve higher levels of knowledge and technological improvement which will allow them to exploit competitive advantages.

However, recent analyses based on the Oslo Manual [OECD, 1992 and 1996; and European Commission, 1996] have shown that internally developed R&D is only one of the possible sources of innovation, as the acquisition of disembodied technology and investments in marketing, software development, training and design may also lead to the implementation of technologically new or improved products or processes. Thus, it is not surprising that in developed economies, these and other intangible investments have become an important concern for investors, creditors, managers, policy makers and researchers.

In a large number of industries, business enterprises are nowadays feeling a growing need to undertake important investments in their human resources, new technology, research and development and advertising, in order to pursue new process and product innovation as well as to develop and maintain their broader capabilities to assimilate and exploit externally available information [Cohen and Levinthal, 1989]. Thus, intangible investments currently appear to be one of the fundamental concerns of business enterprises willing to develop (or maintain) a competitive advantage. For young innovative firms in highly competitive environments (pharmaceuticals, wireless communications, internet services, etc.) the most important long-term assets are intangibles such as the knowledge of their employees, technology under development, manufacturing arrangements, and marketing and distribution systems, all of which are absent from financial statements [Brennan, 1992]. In fact, most intangibles are only revealed indirectly by incremental economic performance that is not accounted for by tangible investments [Mortensen, Eustace and Lannoo, 1997].

Intangible investments are mainly intended to acquire future earning power, and as such, may be considered as assets susceptible of recognition and disclosure in financial statements. The economic rationale underlying the classification of an intangible investment as an asset lies in its potential for the generation of future profits. From this purely economic point of view, there is no theoretical basis upon which a clear distinction may be made between intangible and tangible assets, as both represent future economic benefits for the firm, resulting from past transactions or events. However, according to the regulations issued by most accounting standard setting bodies in the world, most intangible investments (although contributing to generate future income) are not reflected in the balance sheet but immediately expensed in the income statement. Therefore, financial statements fail to provide a true and fair view of the firm’s (nonphysical) position.

In sum, since intangibles investments are the source of future economic profits to the firm, they should be considered as assets and thus, reflected in the annual accounts. However, the intangible determinants of the value of business enterprises are not reported in companies’ financial statements, mainly due to the lack of ability of the accounting standards issued to date to prescribe how to adequately do so. The critical

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4 Differences in intangible intensiveness are likely to exist across industries, as well as within industries as a result of differences in firm size Cohen, Levinthal and Mowrey [1987].

5 According to SFAC 5 [FASB, 1984], the balance sheet does not report all assets and liabilities of the firm, but reflects only those meeting specific recognition criteria. For an item to be included in the bal-
issue in this regard is to determine what intangibles are, and under what circumstances an intangible element may be considered as an asset. We next focus on this issue by discussing the definition of intangibles.

2.1 The Definition of Intangibles

There is great controversy within the accounting academic community as to whether or not intangibles should be reported in company financial statements. The debate is focused on issues such as the definition of intangibles, their classification and measurement, when they should be capitalized and expensed, how they should be amortized, and where in the financial statements should information on intangibles be disclosed. It appears that a generally accepted definition of intangibles (assets and liabilities) should have been the necessary starting point of that debate. However, that does not seem to be the case.

The definitions provided by the main regulatory bodies in the world are rather similar, as they usually characterize intangible assets as non-physical and non-monetary sources of probable future economic profits accruing to the firm as a result of past events or transactions. The most recent example of this may be found in IAS 38 [IASC, 1998b] that defines intangible assets as non-monetary assets without physical substance held for use in the production or supply of goods or services, for rental to others, or for administrative purposes: (a) that are identifiable; (b) that are controlled by an enterprise as a result of past events; and (c) from which future economic benefits are expected to flow to the enterprise. However, the recognition criteria adopted by most standard setting bodies are indeed restrictive, leaving most intangible investments out of the concept of intangible assets, as the emphasis seems to be on reliability, to the detriment of relevance.

Intangibles are often identified with goodwill and understood as the excess cost of an acquired company over the value of its net tangible assets. This view is shared by White, Sondhi and Fried [1994] who state that in most cases, goodwill and other intangible assets arise as residuals in purchase method acquisitions, and represent the portion of the purchase price that cannot be allocated to other, tangible assets. They state that goodwill represents the premium paid for the target's reputation, brand names, or other attributes that enable it to earn an excess return on investment, justifying the premium price paid. Hence the name of goodwill. In the UK, the Accounting Standards Board (ASB) has embraced this idea considering that all intangibles should be understood as part of goodwill, as it is unlikely that they can be sold without selling the whole business. In other words, the ASB assumes that intangible assets are not identifiable or separable.

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6 Proofs of the current interest in intangibles are the papers presented at the International Conference on Industrial Competitiveness in the Knowledge-Based Economy held in Stockholm in February, 1997 and the Intangibles Conferences hosted by the Stern School of Business of New York University.

Conversely, Belkaoui [1992] distinguishes two main types of intangible assets: unidentifiable assets included in goodwill and identifiable intangible assets such as patents. Napier and Power [1992] make an interesting distinction between entry separability and exit separability. By entry separability they mean that the asset can be identified as it is either internally produced or externally acquired by the firm: therefore the costs of production or acquisition must be accurately measurable and identifiable with the asset. This idea is implicit in some accounting standards, such as IAS 38 [IASC, 1998b], that require the historical cost of an intangible asset to be ascertainable, as a basic premise for recognition. On the other hand, exit separability implies that the asset may be traded separately from other intangibles of the firm or from the firm as a whole. This is the notion of separability underlying SSAP 22 [ASC, 1989].

In sum, although none of the definitions of intangible assets proposed in the accounting literature has gained general acceptance, it is possible to identify a handful of basic characteristics of intangibles that are common to most of them: intangibles are usually defined as identifiable (separable) non-monetary sources of probable future economic benefits to an entity that lack physical substance, have been acquired or developed internally from identifiable costs, have a finite life, have market value apart from the entity, and are owned or controlled by the firm as a result of past transactions or events.

However, there is a wide range of elements that currently are regarded as intangible determinants of the value of companies, but either do not fit into that definition or do not match the recognition criteria. Thus, a fundamental question remains unanswered: if they are sources of future economic profits, why are they not reported by all corporations and only arise in certain acquisitions? One, among all the possible answers, might be that we as a profession are still not capable or skilled enough to develop a generally accepted set of guidelines for the identification and measurement of all intangibles, as most accounting standard setting bodies have put more emphasis on the reliability of financial statements than on their relevance.

2.2 The Classification of Intangibles

There is a vast amount of elements that currently receive consideration as intangibles, but like their definition, there is no generally accepted classification. In fact, the classification of intangibles is an issue that has received scarce attention from academic researchers until rather recently. However, many attempts have been made in the last few years in order to develop theoretically consistent classifications of intangibles. Recent work has stressed the importance of understanding that the accounting notion of assets is not sufficient to embrace the concept of intangibles as the latter includes elements such as organizational knowledge and customer loyalty or satisfaction, that would be elusive if approached from a strictly quantitative financial perspective. This section briefly addresses the problem of the classification of intangibles and identifies a small number of common factors in order to provide a basis for the development of a consensus.

Intangibles exist regardless of whether or not accounting standards consider them as suitable for recognition as assets (or liabilities). As stated above, intangibles may be

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Hendriksen [1982] stresses that the lack of physical substance is not the main difference between tangible and intangible assets. Conversely, he suggests that the most important single attribute of intangibles is the high degree of uncertainty associated to the future benefits expected from them.
all classified as goodwill or be identified separately and grouped into different categories. From a financial accounting point of view, Hendriksen and van Breda [1992] suggest that most assets result from situations where cash has been expended, but the related expense has not been recognized in the income statement. Thus, they consider intangible assets may be classified into traditional intangibles (such as goodwill, brand names or patents) and deferred charges (such as advertising, research and development or training costs).

Intangibles have also been classified from a managerial perspective. During the last few years, some Scandinavian companies have disclosed information on intangibles in their annual accounts, using a classification framework for intangibles that is based on the concept of the balanced scorecard. In a supplement to its 1998 annual report, Skandia introduced a framework for understanding the value creating processes within their organization. In their view, market value is driven by financial capital and intellectual capital. The latter results from the addition of human capital to structural capital, which in turn is based on customer capital and organizational capital. Finally, organizational capital is grounded on innovation capital and process capital.

From a marketing point of view Guldberg and Pike [1990] classify intangible assets into four categories based on a conceptual representation of the series of events that lead to the creation of a competitive advantage: Value creators (advertising, product development and other marketing support), Marketing assets (trademarks, brands, entry barriers and information systems), Value manifestations (image, reputation and premium price), and the synthesis of marketing assets: Competitive advantage.

Finally, from a financial perspective, Mortensen, Eustace and Lannoo [1997] propose a five category classification of intangibles: innovation capital (R&D), structural capital (intellectual capital and knowledge assets, organizational coherence and flexibility, and workforce skills and loyalty), executory contracts (operating licenses and franchises, media and other broadcast licenses, agricultural and other production quotas in regulated industries, maintenance, servicing and environmental liabilities, outsourced operations of over a year duration, material employment contracts, and risk hedging financial instruments, derivatives, etc.), market capital (brands, trademarks and mastheads), and goodwill.

The existence of intangible liabilities is an issue that has not been addressed by previous studies. If the book value of equity is the difference between the accounting value of the firm’s assets and its liabilities, and the market value of the equity is the difference between the market’s valuation of its assets and its liabilities, then the market value of the equity minus its book value of equity must represent the net value of its unrecorded (intangible) assets once its unrecorded liabilities have been deducted. Intangible liabilities may arise from the existence of potential losses not accounted for by means of allowances or any other sort of untaxed reserve (unrecorded future environmental liabilities may be a good example). Future studies aimed at developing a classification of intangibles should take into consideration the existence of intangible liabilities.

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9 Intellectual capital is defined by Brookings [1997] as the difference between the book value of the company and the amount of money someone is prepared to pay for it. She then distinguishes four categories of intellectual capital: assets which give the company power in the market place, those representing property of the mind, those giving the organization internal strength and those derived from the people who work in the organization.

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So far, despite these and other recent efforts, there does not appear to be a generally accepted classification of intangibles. As with their definition, whether or not consensus may be achieved depends to a large extent on the possibility to carry out a broad and thorough discussion on the economic nature and different characteristics of intangibles, which should lead to the identification of a reduced set of common factors that may eventually become generally accepted as their fundamental characteristics. Academics and standard setting bodies are currently faced with the challenge of undertaking joint efforts towards developing an appropriate definition of intangibles and a coherent classification, which are the necessary starting point for the development of a set of valuation criteria and guidelines for financial reporting that will result in an improvement of the ability of financial statements to provide relevant information on the intangible determinants of the value of companies.

3.0 ACCOUNTING FOR INTANGIBLE ASSETS: CURRENT PRACTICES

The debate on how intangible assets should be accounted for and reported in the financial statements has been present in the literature for over a century [Dicksee, 1897; Leake, 1914; Canning, 1929]. Disclosure of information on intangible assets requires the development of a theoretical basis upon which recognition and measurement criteria may be set. Traditionally, accountants have followed a deductive approach to the problem, based on two income theories. One is the valuation approach, which is balance sheet oriented and relies on the assumption that a true economic value can be associated with each element in the financial statements and that true income can be estimated as the difference between the net value of the firm’s assets at two different points in time. The other is the transactions approach, which is profit and loss account oriented, that builds up accounting numbers by matching transaction costs in activities to produce activity costs [Hodgson, Okunev and Willet, 1993].

The central issues in recognition are the judgment of what the probable future economic benefits are and to what extent they are controlled by the firm. The FASB [1985a] states that probable refers to what can be reasonably expected or believed on the basis of logical evidence. Therefore, if there is a reasonable expectation that an investment in an intangible element will generate future economic benefits controlled by the firm, it should be recognized as an (intangible) asset and reported in the financial statements. Control of the probable future benefits arising from the intangible investment is considered by most accounting standard setting bodies as a basic requisite for recognition. As a result, investments such as recruiting and training may not be capitalized and amortized because of the lack of certainty surrounding the length of the contractual relationship between the firm and its employees. Current US GAAP prescribe that acquired intangible assets be included in the balance sheet at their acquisition cost and amortized over a maximum of 40 years, whereas internally developed intangibles must be expensed. In 1974, the FASB decided to require the full expensing of R&D outlays on the grounds that a direct relationship between research and development costs and specific future revenue had not been demonstrated systematically, even with the benefit of hindsight [SFAS 2, p.14]. The FASB argued that empirical studies had generally failed to find a significant correlation between research and development expenditures and future improvements in the firms’ performance.10

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10 Kothari et al. [1998] suggest that the uncertainty associated to the future earnings of R&D intensive companies may also be a sound reason for a conservative accounting treatment of R&D outlays.
Twenty six years later, in developed economies investments in R&D play a fundamental role in most industries. Although conditions have changed dramatically since 1974, R&D outlays are still fully expensed in the US with the only exception being software development costs.11

Although one would expect firms to be willing to reflect R&D investments in their balance sheet to increase their total assets and book value of equity, in 1996 the Software Publishers Association asked the FASB to abolish SFAS 86 on the grounds that the capitalization of software development costs is irrelevant to investors. Aboody and Lev [1999] analyzed the value relevance of capitalized software development costs and found that both, the asset and its depreciation rate are significantly associated with stock prices and subsequent earnings. Thus, the argument of Software Publishers appears to be unfounded.

Cost is the usual basis for the recognition of intangibles. In its Research Bulletin No. 43, the AICPA established that the initial amount assigned to all types of intangibles should be cost. In the case of non-cash acquisitions, as, for example, where intangibles are acquired in exchange for securities, cost may be considered as being either the fair value of the portfolio of shares or the fair value of the property or right acquired. Although the value of intangibles (among them goodwill) is likely to grow over time if the firm undertakes successful intangible investments, revaluations are only allowed for certain fixed assets by some accounting standard setting bodies [ASC, 1987]. However, the value of intangibles is likely to grow over time if the firm undertakes successful intangible investments.

Despite the existence of claims that intangibles should be treated as any other tangible asset [Lev and Zarowin, 1999], some argue that there are significant differences between tangible and intangible assets which make it necessary to apply different criteria for the recognition and valuation of the latter [Hendriksen, 1982]. Proponents of this view argue that the main differences between intangible and tangible assets are that the former do not have alternative uses, are not always separable (as in most cases they only have value in combination with other firm’s assets), and their recoverability is subject to a great degree of uncertainty. Hendriksen [1982] states that the uncertainty associated to the future benefits expected from certain intangible assets impedes their recognition, as control of the asset is the sine qua non condition. Therefore, he suggests that the criteria used for the recognition and valuation of tangible assets may not apply.

Conversely, Lev and Zarowin [1999] suggest that intangible assets should be accounted for following the same methods applied for tangible elements. In fact, according to the SFAC 6, paragraph 25, the FASB [1985a] considers the ownership or control of the future benefits as the main requisite for the recognition of intangibles. If the focus is on the ownership of the benefits, then intangible assets such as human resources could be recognized, for although the firm does not own its employees, it does control the future benefits they will generate. There is a growing new trend in accounting research, which seems to be providing strong support to Lev and Zarowin’s approach towards accounting for and reporting intangibles. However, the dominant view on the recognition of intangibles and their inclusion in the financial statements in most countries seems to be still close to that held by Hendriksen and van Breda [1992].

11 In view of the growth of the computer software industry in the late 1970s and early 1980s, the FASB [1983b] issued SFAS 86, allowing development costs to be capitalized and subsequently amortized once economic feasibility of the software was established.
who believe intangibles must satisfy the recognition criteria of SFAC 5, that is, they should meet the appropriate definition, and be measurable and reliable.

There are significant differences in the treatment of intangible assets across countries that may seriously limit the comparability of financial statements in an international context. According to APB Opinion No. 17 [1970], the valuation of intangibles requires: externally acquired identifiable intangible assets to be capitalized, externally acquired unidentifiable assets to be expensed, internally developed identifiable intangibles to be capitalized, with the exception of research and development, and internally developed unidentifiable assets to be expensed. Thus, when intangibles are purchased, they are recognized and reported in the balance sheet. However, if a firm successfully allocates resources to R&D, advertising and personnel training, its balance sheet will not show the "internally generated goodwill". Obviously, this is not logical and undermines the comparability of financial statements across companies.

IAS 38 [IASC, 1998b] considers R&D as a category of internally generated intangible items. It requires the full expensing of research, but allows certain development costs to be carried forward as assets in order to be matched against related revenues during a period of up to 20 years.

As for goodwill, the IASC [1998a] allows its capitalization and recommends amortization in five years, unless an appropriate justification for a longer period (up to twenty years) is provided (IAS 22). In the UK SSAP 22 recommends that goodwill be written off immediately against reserves, although it allows capitalization and amortization during its economic life. Expensing at the acquisition date may lead to an overestimated value of return on equity (ROE) after an acquisition takes place, which might be seen as a competitive advantage for UK firms versus US companies [Choi and Lee, 1992]. However, it may also lead to the destruction of shareholder value, weakening the capital base and increasing the future cost of capital [Kennedy, 1994; Tollington, 1994; Davis, 1996]. The ASB discussion paper on goodwill set out several alternative treatments: capitalization and amortization, capitalization with annual reviews, immediate write-off against reserves, and several combinations of these.

In Australia, the ASSB exposure draft 49, required that identifiable intangible assets be amortized over the period of time during which the asset may be reasonably expected to yield benefits. The draft faced strong criticism from practitioners [English, 1990] as it is against the views held by the IASC.

In the European Union, the IV Directive allows member states to authorize firms to carry forward R&D costs, but does not provide a precise definition thereof. Goodwill resulting from an acquisition may also be capitalized and amortized during a period of up to five years, but member states may set a higher limit, provided it does not exceed the economic life of the asset. Obviously, this results in a variety of accounting methods being applied and limits the comparability of accounting information [FEE, 1992].

Since there is in most countries a certain extent of discretion in the recognition of some intangibles and the choice of the depreciation method, surveys of the practices adopted by firms in different countries are likely to provide an interesting insight.

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13 Despite the theoretical consistency of that conjecture, Megna and Mueller [1991] calculated individual advertising capital stocks for firms in the toys, distilled beverages, cosmetics, and pharmaceuticals firms, and R&D stocks for the pharmaceuticals firms, and found differences in profit rates that are not controlled for after these adjustments were introduced.
Several surveys have already been carried out, and their results will be briefly commented here.

Wines and Ferguson [1993] examined the accounting policies adopted from 1985 to 1989 by a sample of 150 Australian listed companies for goodwill and identifiable intangible assets, finding a decrease in the diversity of methods used and a preference for the capitalization of identifiable intangibles in order to reduce the impact on operating profit of the amortization of goodwill.

Emenyonu and Gray [1992] collected data from the annual reports of 26 large industrial companies from France, Germany and the UK, and investigated the existence of differences in accounting measurement practices. Their results indicate that significant differences exist in the treatment of goodwill and R&D costs. While German and UK companies seem to prefer to write off goodwill against reserves, 92% of the French firms capitalize and amortize it. As for R&D, most firms in all the three countries showed a preference for immediate write off.

The LBS Report [Barwise, et al., 1989] investigated the valuation methods for brands in the UK and concluded that there was no general agreement on valuation methods at that time. Moreover, the report stated that existing methods could not be regarded at either totally theoretically valid or empirically verifiable. One of the main underlying problems was considered to be the heavy reliance of most valuation methods on estimates of future profitability, which yielded subjective measures of value. As a consequence, Barwise, et al. [1989, p.7] stated that “it is inherent in the nature of brand valuations that they are likely to fail the accountants test of reasonable certainty”.

Since it is common practice to allow firms to amortize some intangibles during longer periods when there is a consistent justification, it is necessary to have a reasonable estimate of their economic and legal lives. As some intangibles have an economic life that is shorter than their legal life, an imbalance will appear if annual amortization is estimated on the basis of the latter, as annual depreciation will be artificially low and assets values and earnings will show an upward bias. On the other hand, it may not always be possible to develop an accurate estimate of the economic life of the asset. This has led most standard setting bodies to establish a maximum period for the amortization of intangibles, ranging from 5 to 40 years.

In short, although most accounting standard setting bodies in the world are now placing a great importance on the measurement and the disclosure of information on intangibles, the heterogeneity in their approaches results in financial statements that are neither comparable nor able to present enough relevant information on the intangible determinants of the value of companies.

4.0 THE RELEVANCE OF INTANGIBLES FOR INVESTMENT AND CREDIT DECISION MAKING

As most intangibles are not reflected in the balance sheet and intangible investments are usually expensed as they are undertaken, both earnings and book value of equity are understated by the accounting model. Thus, investors are provided with biased (conservative) estimates of the firm’s current value and of its capability for the creation of wealth in the future. As shown by Lev, Sarath and Sougiannis [1999], this bias is likely to be greater the greater the difference between the growth rate of investments in R&D and other intangibles and the firm’s ROE or ROA. Consequently, Lev and
Zarowin [1999] claim that it is necessary to provide in the financial statements more comprehensive, more reliable and more timely information on intangibles. This could be achieved by broadening the current accounting model and encouraging voluntary disclosure by management, such as explaining the impact that intangibles are likely to have for the future profitability of the firm.

Based on a review of empirical studies, Lev and Zarowin [1999] conclude that the usefulness of corporate financial reports to investors has decreased significantly over the last few decades. They found that whereas during the 1950’s, 18 to 22 percent of the differences in stock performance across firms were related to differences in their reported earnings, only 7 percent of the variance of stock returns was explained by earnings in the 1980s. Lev and Zarowin argue that change, initiated from within and outside the corporation, and the consequent increased uncertainty are the major reasons for the decreasing informativeness of financial reports. Among the sources of bias in financial statements, Lev and Zarowin mention the immediate expense of R&D and restructuring costs, which depresses reported earnings and book values, despite the fact that future cash flows and firm values are generally enhanced by such activities.

In order to assess to what extent accounting information has lost relevance over the last four decades, Collins, Maydew and Weiss [1997] regressed prices on earnings and book values and then estimated a regression of the $R^2$ on a time index. Their results suggest that although the incremental explanatory power of earnings has decreased over time, the joint explanatory power of earnings and book values has increased slightly over the last forty years. Francis and Schipper [1998] also report an increase in the explanatory power of accounting numbers for stock prices over the last four decades. However, Brown, Lo and Lys [1999] have shown that this conclusion may not be consistent, as the increase in the values of the $R^2$ over time may be due to the existence of an upward bias resulting from the over-time increase in the coefficient of variation of scale. In fact, after controlling for this bias, there appears to exist a decline in the value relevance of earnings and book values over the period 1958-1996 in the US capital markets. A similar analysis carried out by Cañibano, García-Ayuso and Rueda [2000] on the basis of a sample of European companies has revealed that the explanatory power of accounting numbers and its behavior over time differs significantly across countries, showing a significant increase in some cases and a consistently decreasing pattern in others.

There is a risk associated with the underassessment of intangibles in the analysis of the financial position of a firm. If financial statements provide investors with biased (conservative) estimates of the firm’s value (the book value of equity) and its capability to create wealth in the future (current earnings), inefficiencies (myopia) may appear in the resource allocation process which takes place in the capital markets. For on the basis of publicly available financial statements investors might decide to allocate resources to firms investing little or nothing in intangibles and thus reporting higher levels of earnings and book values in the short-term (which are likely to revert in the

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14 The results reported by Amir and Lev [1996] and García-Ayuso, Monterrey and Pineda [1997], indicate that accounting information lacks value relevance in fast-changing, technology based industries. Amir and Lev [1996] also documented that variables such as indexes of market penetration or the potential number of customers that proxy for intangibles, are fundamental determinants of the value of firms in one of such industries. Hand [1999] and Trueman et al. [2000] have found that net income has a low explanatory power for stock prices of internet companies, whereas measures of internet traffic appear to show a positive and significant relationship with the market value of these firms.
future), instead of supplying capital to companies undertaking large investments in intangibles which may make them appear as less attractive in the short run, but ensure higher future earnings.\textsuperscript{15} The decreasing explanatory power of accounting numbers for stock returns documented by Lev and Zarowin [1999] and Brown, Lo and Lys [1999] may in fact have much to do with this. Failure to correctly reflect the impact of intangibles on the current and future performance of the business implies that accounting statements fail to present an unbiased (true and fair) view of the firm's financial position. Therefore, investors are provided with non-relevant and non-comparable financial statements and will most likely not be able to assess the value of companies to make efficient resource allocation decisions.

An extensive body of empirical literature has provided evidence on the relevance of intangibles for equity valuation and, therefore, has pointed out the need to take intangibles into account in investment and credit decision making. A review of the most relevant contributions to the literature in this area reveals that in general, current investments in intangibles are associated with higher future earnings and stock returns. However, it also reveals the existence of a significant bias in accounting research, towards the analysis of the value relevance of investments in R&D and advertising to the detriment of other intangible assets whose analysis has just begun and much remains to be undertaken by future research.

4.1. Empirical Evidence on the Value Relevance of Intangibles

4.1.1. Research and Development

Research has attempted to demonstrate that investments in R&D and advertising result in increases in future earnings and, therefore, are positively related to the value of companies. Whereas early studies such as Johnson [1967], Newman [1968] or Milburn [1971] failed to establish a consistent relationship between R&D and advertising expenses and subsequent earnings, recent research has documented a positive association between future profitability and investments in both advertising [Ravenscraft and Scherer, 1982; Bublitz and Ettredge, 1989; and Chauvin and Hirschey, 1993] and R&D [Bublitz and Ettredge, 1989; Sougiannis, 1994; and Lev and Sougiannis, 1996].

Sougiannis [1994] has shown that earnings adjusted for the expensing of R&D reflect realized benefits from R&D: specifically, he documented that increases in R&D lead to an increase in profit over a seven-year period. If investments in R&D result in increases in future earnings and the market value of companies is a function of future expected earnings, there should be a positive and significant contemporaneous relationship between (i) stock prices and R&D expenditures and (ii) stock returns and increases in R&D investments.

The relationship between stock returns and increases in R&D investments has been addressed by a large number of studies after Grabowski and Mueller [1978] found that firms in research-intensive industries earn significantly above-average returns on their R&D capital. Hirschey [1982] also found that, on average, advertising and R&D expenditures have positive and significant market value (intangible capital) effects.

\textsuperscript{15} Barth and Kasznick [1999] have shown that firms with more intangible assets (greater R&D and advertising expenses), higher information asymmetry and idle cash are more likely to repurchase their shares and show greater stock price reactions to stock repurchase announcements.
The validity of these findings was corroborated by Jose, Nichols and Stevens [1986], Luitgarten and Thomadakis [1987], Woolridge [1988], Morck, Shleifer and Vishny [1988], Chan, Martin and Kensinger [1990], Connolly and Hirschey [1990], Morck and Yeung [1991] and Doukas and Switzer [1992]. More recently, Lev and Sougiannis [1996] documented a significant inter-temporal association between firms’ R&D capital and subsequent stock returns, suggesting a systematic mispricing of the shares of R&D-intensive companies, or a compensation for an extra-market risk factor associated with R&D. Chan, Lakonishok and Sougiannis [2000] provide support to this contention, showing that companies with high R&D investments relative to their market value tend to have poor past returns and show signs of mispricing, which leads one to think that the market fails to give them credit for their R&D investments. In all these studies, a consistent positive share-price response to announcements of increased R&D spending was documented, even in the presence of earnings declines. They also found that positive deviations from the industry average R&D intensity lead to larger stock returns for firms in high-technology industries and that R&D investments are associated with return volatility, suggesting that there is a need for increased disclosure of information on intangibles [Chan, Lakonishok and Sougiannis, 2000].

The relationship between market value and R&D investments has usually been investigated by regressing either Tobin’s $q$ ratio on measures of R&D intensity such as the R&D to sales ratios. Ben-Zion [1978, 1984] was among the first to find the difference between market value and book value to be correlated with R&D expenditures, suggesting that investors attach a high value to investments aimed at improving the competitive position of companies and pay little attention to the conservative earnings figure resulting from the full expensing of R&D. This is consistent with the findings of Dukes [1976], who reported that investors commonly adjust earnings for the full expensing of R&D, therefore controlling for the distortion that the expensing of R&D introduces in the financial statements, on the grounds that R&D outlays are an intangible asset with a long-term economic life.

A number of studies have subsequently investigated the relationship between Tobin’s $q$ ratio\textsuperscript{16} and investments in R&D: Griliches [1981], Hirschey and Weygandt [1985], Cockburn and Griliches [1988], Hall [1988] and Hsieh et al. [2000] have all found significant correlations between Tobin’s $q$ and investments in R&D. In a similar vein, Megna and Klock [1993] analyzed to what extent intangible capital explains differences in the $q$ ratio across firms in the semiconductors industry, and found significant firm-specific differences persisting after adjusting for R&D stocks and patent stocks. However they concluded R&D and patent stocks appear to measure different elements of intangible capital.

More recently, the emphasis of research has shifted towards the Market-to-Book ratio. Studies have attempted to develop estimates of the unrecorded R&D asset in the US in order to explain the cross-sectional differences between the market value of companies and their book value of equity. The R&D asset has usually been estimated by means of cross-sectional regressions of either lagged operating income [Sougiannis, 1994; and Lev and Sougiannis, 1996 and 1999] or the market-to-book ratio [Cockburn and Griliches, 1988; Hirschey, 1982; and Hall, 1993] on R&D expenditures. Using

\textsuperscript{16} A common limitation in all these studies is that although Tobin’s $q$ ratio is an attractive measure of the firm’s potential for future wealth creation, it may not be calculated on the basis of the information that is available for the purposes of empirical research.
cross-sectional cross-industry samples implies assuming that R&D growth, success probabilities and depreciation rates are constant for all the firms in the economy, or in a specific industry, at a certain period. According to Hirschey [1982] cross-sectional estimates of the R&D capitalization and amortization rates undoubtedly err in individual instances. Moreover, drawing cross-sectional estimates of the industry R&D capitalization and depreciation parameters implies that the probability of success of R&D projects and the economic life of the R&D asset do not differ significantly across firms in a given industry.

To overcome this limitation, Megna and Mueller [1991], Zarowin [1999] and Ballester, Garcia-Ayuso and Livnat [2000] have adopted an alternative approach by estimating firm-specific R&D assets on the basis of a time-series analysis. While Megna and Mueller [1991] regress sales on past advertising and R&D outlays and introduce the industry aggregate outlays as an independent variable, Zarowin [1999] uses past operating income in order to analyze the relationship between unrecorded R&D and the variation of stock prices in the presence changes in R&D investments. On the other hand, Ballester, Garcia-Ayuso and Livnat [2000] estimate a simultaneous system of equations based on an extension of Ohlson’s [1995] valuation model and find that the cumulative R&D asset accounts for an average 32% of the difference between the market value and the book value of equity model adjusting abnormal earnings and book values for the capitalization of R&D. Both Zarowin [1999] and Ballester, Garcia-Ayuso and Livnat [2000] report significant differences across firms in the R&D capitalization and depreciation rates, lending support to the view that cross-sectional estimates may be affected by a significant bias. The time series approach towards the estimation of the R&D unre corded asset implies that the capitalization and depreciation parameters are constant over time. Therefore, the rate of success in R&D investments and their economic life are both assumed to be constant over time for each firm.

The results of these studies suggest that R&D investments are consistently associated with the market value of companies and, thus, should be capitalized and amortized during an economic life that is likely to differ not only across industries but also across companies. This has obvious implications for future standard setting, as in most countries R&D expenditures and other intangibles are accounted for in an extremely conservative way and seldom reflected in the balance sheet of companies leading to a downward bias in the value of assets, shareholders’ equity and current earnings.

However, there are several limitations that may affect the consistency of the results reported by many of the studies of the value relevance of R&D. First, they do not consider the existence of alternative factors explaining stock prices and returns with respect to which R&D intensity may have little incremental explanatory power.17 Second, empirical studies have adopted a linear view of the relationship between R&D and market value, while the impact of these expenditures on corporate performance is likely to be non-linear [Littner and Larcker, 1998] and may depend on environmental factors, such as the concentration of R&D and other intangible activities in certain communities or the dynamics of R&D diffusion.  

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17 There may be certain corporate characteristics (such as firm size or earnings persistence) or industry-specific factors with which R&D investments are strongly associated, that explain cross-sectional variations in stock prices or returns but are ignored in most empirical studies of the value relevance of R&D. In that case it is likely that after controlling for the relevant factors, the explanatory power of R&D would not be significant. Connolly, Hirsch and Hirschey [1986] addressed this issue and documented unionization reduces the returns to R&D and produces a corresponding limiting influence on R&D investment at the firm level.
4.1.2 Advertising

If advertising builds up the firm's intangible capital [White and Miles, 1996], strengthening its brand equity or its customer loyalty, advertising outlays are likely to be positively related with future stock performance (if it is effective) and has a long-lived impact on actual and potential customers. The value relevance of advertising investments was first investigated by Comanor and Wilson [1967], who provided early evidence on the usefulness of advertising intensity as a proxy for product differentiation entry barriers.

Some empirical studies have investigated the relationship between advertising outlays and future earnings in order to assess the validity of the FASB's position. Bublitz and Ettredge [1989], Ravenscraft and Scherer [1982] and Hall [1993] have found that the impact of advertising is not long-lived and is limited to an average of two years. Therefore, there seems to be no rationale for the capitalization of advertising expenses. Although some recent studies claim to have found evidence of a long long-lived impact of advertising on future earnings, thus providing support for capitalizing such expenses, Landes and Rosenfield [1994] suggest that their results are mainly due to the existence of firm-specific factors. They developed a model of the firm's advertising decision in which advertising and product quality are considered as complementary, and demonstrated that the impact of advertising decreased significantly when firm-specific factors were controlled for. This is in contrast to the early claims for the capitalization of advertising outlays raised by Abdel-khalik [1975], who reported long-lived effects in the food and drug and cosmetics industries.

Finally, Chauvin and Hirschey [1993] found that advertising investments have large, positive and consistent influences on the value of companies. Interestingly, their analysis revealed that stock returns associated with expenditures are greater for large firms than for small ones. Thus, their findings may be a consequence of the positive association between firm size and the persistence of earnings, rather than the result of a consistent association between advertising expenses and market values.

4.1.3 Patents

Although investment in R&D is probably the most frequently used indicator of innovation, it has significant shortcomings. The R&D variable is not a measure of output but of input, and therefore fails to capture variations in the efficiency of the innovative process. On the other hand, R&D activities are underestimated in production-based technologies, where much technical change takes place in design offices and production engineering departments as well as in R&D laboratories. Furthermore, R&D carried out in service industries and in general and software development firms in particular is badly captured in statistics [Soete and Verspagen, 1990]. Finally, R&D may be a long process and investors are likely to attach a different value to the firm, depending on the degree of progress in the innovative process [Pinches, Narayanan and Kelm 1996]).

Patents and patent citations appear as suitable alternatives to R&D as proxies for innovation, because they capture the success of innovative activities. However, they may also have significant shortcomings, as they are a measure of output that do not

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18 Griliches [1990] presents a comprehensive survey outlining the problems of patents as economic indicators.
fully capture the innovative efforts of companies. Moreover, propensity to patent may differ across firms, fields of technology or countries [OECD, 1994]. Finally, notwithstanding their limitations, these two measures have been used by a number of researchers to investigate the effect of innovative investments on the firm's future performance.

Studies on the value relevance of patents [Griliches et al., 1987] have shown that although they do not have as much explanatory power as R&D investments, they convey incremental information with respect to R&D measures.

Several studies, focused on high-tech industries, have found that weighting patent measures with patent citations may help improve the explanatory power of patent variables for the value of companies, as patent citations provide information on the [Trajtenberg, 1989; Austin, 1993; Shane, 1993].

The evidence found by these studies suggests that both patents and patent citations are consistently related with the market value of companies. However, their results are based on small samples of companies. Hall et al. [1998] tried to overcome this potential limitation by using a large cross-industry sample and found that R&D shows a stronger correlation with market value than patents or patent citations, and that simple citation-weighted patent stocks are more highly correlated with the value of firms than patents. However, the results of their analysis as well as those of previous research on the value relevance of patent citations may be affected by the "noise" in the patent citation data shown by Jaffe et al. [1997].

### 4.1.4 Brands and Trademarks

According to Aaker [1991], brands are names and symbols (including trademarks) intended to identify the goods or services provided by a firm and to differentiate them from those of its competitors. The ownership of a brand that is attractive to customers allows a seller to obtain a higher margin for goods or services that are similar to those provided by competitors. Therefore, brands may be considered as an intangible asset whose value is higher than the cost reported in the balance sheet.

Since there is no clear distinction between a brand and a trademark [Seethamraju, 2000], we will next focus on studies that have tested the association between the market value of companies and the estimated value of their brands or trademarks or their acquisition costs.

Based on an analysis of a sample of Australian firms, Barth and Clinch [1998] have demonstrated that revalued intangible assets are significantly positively correlated with stock prices. Since brands represent a significant part of the revalued intangible assets of Australian companies, the evidence presented in their study implies that brands are in fact relevant for equity valuation. In order to test the existence of a relation between brand values and the market value of companies it is necessary to use estimates of the value of brands, their acquisition or production costs, or measures of their quality. Barth et al. [1999] used brand values estimated by Financial World and found that they provide information on stock prices beyond that conveyed by book values and earnings, and that changes in brand values provide incremental information on stock returns with respect to earnings levels and changes. Finally, Seethamraju [2000] has estimated the value of internally developed brands based on advertising expenses, finding significant correlations with firms' market values. This study has also revealed that stock prices have positive and significant reactions to announcements of acquisition of
trademarks with a size adjusted return for a three day window around the announce-
ment date of 1.69% for and average firm, and of 3.8% for firms disclosing quantitative
data about the purchase. Finally, Aaker and Jacobson [1994] used measures of brand
group quality and found a positive but not significant association with stock returns.

The empirical evidence provided by these studies is still scarce, contradictory and
inconclusive. Future research should attempt to develop methods for the accurate val-
uation of brands, provide international evidence on their value relevance and assess the
role of advertising in the valuation of brands and trademarks.

4.1.5 Customer Satisfaction

Probably associated with the value of brands and advertising, customer satisfac-
tion is an issue that has only recently been the focus of empirical studies of the value
relevance of intangibles. The underlying hypothesis is that customers will be willing to
pay a higher price (and thus a firms will likely have higher earnings) when they are satis-
fied with the products and services provided by the company. Thus, the future finan-
cial performance and market value of the firm are likely to be higher the higher the sat-
sisfaction of its customers.

A positive association between customer satisfaction indexes and future prof-
Itability was found by Banker, Potter and Srinivasan [1998] based on a small sample
of hotels, and by Anderson, Fornell and Lehmann [1997] based on a sample of
Swedish manufacturing firms. However, the latter reported a negative association for
service firms. Foster and Gupta [1997] also found contradictory results, depending on
the questions included in the customer satisfaction measures.

In an attempt to shed light on this debate, Ittner and Larcker [1998] analyzed a
sample of 73 retail branch banks in the US of a leading financial services provider and
found that customers satisfaction measures are leading indicators of customer purchase
behavior, growth in the number of customers and accounting performance, although
they are not reflected in contemporaneous book values. They found a positive but non-
linear relation between measures of customer satisfaction and financial performance.
Moreover, their results showed that customer satisfaction measures are relevant for
equity valuation as their disclosure is significantly associated with positive stock
returns. However, they acknowledge that customer satisfaction is likely to be measured
with error and that, in fact, their measures may be somewhat arbitrary.

So far, research has failed to establish a clear and consistent relationship between
customer satisfaction and financial performance or stock prices. The empirical evi-
dence presented by previous studies is scarce and contradictory. Thus, future efforts are
needed in order to provide insight into the role of customer satisfaction in the valua-
tion of companies as well as into the relationship between the satisfaction of customers
and the value of brands or the impact of advertising on the market value of the firm.

4.1.6 Human Resources

A firm with more capable employees is likely to earn higher profits than competi-
tors whose workers have lower capabilities for the development of the tasks involved
in the activity carried out by the firm. Therefore, the value of companies must be relat-
ed to the quality of their human resources. However, accounting standards prescribe
that amounts invested in recruiting and training be expensed as incurred and preclude
from reflecting any measure of value of human resources in the financial statements.
There are several recent empirical studies that have attempted to establish a consistent relationship between different measures of the value of human resources and the market value of companies. Using a sample of Swedish listed firms, Hansson [1997] found that knowledge intensive companies showed higher average stock returns than those in which the knowledge of human resources was a less important value driver, such as manufacturing companies. Also, Huselid [1999] and Hand [1998] have reported the existence of a positive and significant relationship between investments in human resources and the market value of companies.

Empirical evidence on the relevance of human resources for equity valuation is not only scarce (probably due to the lack of data on investments in human capital, since recruitment and training expenses are usually not reported separately in the financial statements), but also based on small samples of firms. Therefore, further research is needed before the results of these studies may be generalized.

### 4.2 The Importance of Intangibles for Credit Decision Making

Traditional credit analysis stresses the importance of tangible assets such as property, plant and equipment and financial assets as the main collateral for loans. Thus, knowledge-based firms may face high financing costs if credit analysts perceive a high level of risk associated to their lack of fixed tangible assets. Venture capital fundraising may only be possible if lenders and investors perceive the intangible assets as a guarantee of the firm’s potential for future wealth creation (see Gompers et al., 1998).

However, intangible assets may have a significant collateral value for creditors. Ostad [1997] stresses the relevance of intellectual property for credit decisions and argues that lenders need to conduct an intellectual property audit, check filings and review employee and consultant agreements. This appears to be the view adopted recently by the Moody’s Investors Service, whose approach towards credit scoring explicitly considers the value of intellectual property rights [Stump, 1998].

From the perspective of lenders, failing to identify value relevant intangibles may result in the loss of future revenues [Leepak, 1999]. In fact, as Scott [1994] suggests, one of the lenders’ main challenge is to identify intangibles that could be of use to a third party and will keep their value over time.

Empirical work has revealed the existence of a consistent relationship between a firm’s intangible assets and certain aspects that are relevant for credit analysis. Examples are Cornell, Landsman and Shapiro [1989], who found evidence that there is a consistent relationship between a firm’s net intangible assets and the impact that bond rating downgrades have on its stock prices; Bergman and Callen [1991] have documented a positive correlation between the renegotiation settlement accruing to shareholders and the ratio of intangible assets to the total value of the firm, and an inverse relationship between the latter and the debt to equity ratio; and Bradman [1999] has shown that intellectual property rights are currently being considered as a relevant collateral in bond issues.

Since firms investing large amounts in intangibles are perceived as risky by providers of capital, they are likely to face a high cost of capital. Therefore, borrowing against intangibles may have high agency costs. The evidence presented by Barclay, Smith and Watts [1995] and Lev, Sarath and Sougiannis [1999] that R&D intensive companies tend to finance their assets mainly with equity, probably as a consequence of banks having little confidence on the future success of their intangible investments.
In sum, the evidence provided by the empirical literature clearly supports the contention that intangibles are fundamental determinants of the value of companies and are perceived by the market as assets. Therefore, intangible investments should be capitalized and amortized over their estimated economic life. This has significant implications for policy making: standard setting bodies should allocate efforts to the improvement of the current accounting in order to provide relevant information on the intangible determinants of the value of companies.

5.0 STANDARD SETTING IMPLICATIONS OF RESEARCH ON INTANGIBLES

Traditionally, accounting research has not had a clear and immediate impact on accounting practice. However, the evidence provided by the empirical literature on the relevance of intangibles for firm valuation clearly puts standard setting bodies in the position to undertake efforts aimed at enhancing the usefulness of financial statements by including relevant (besides reliable) information on the intangible determinants of the firm’s financial position. A number of proposals have been made in recent years for the improvement of the current accounting model. This section will discuss the alternative courses of action proposed by recent studies and present a view of the future prospects for the process of accounting standardization.

5.1 Towards More Relevant (besides Reliable) Financial Statements

Vickery and Wurzburg [1992] suggest that there are strong arguments for rethinking the measurement and treatment for a range of intangibles. Among the new challenges facing accounting standard setters are alliances and partnerships, financial instruments and investments in intangible assets [Swierenga, 1997]. However, every attempt at a solution for issues such as accounting for goodwill seems to give rise to new problems [Grant, 1996]).

Although there seems to exist a broad agreement that the treatment of intangibles in current accounting systems is not appropriate, there is a great controversy over the way in which this problem may be solved [Mortersen, Eustace and Lannoo, 1997]. One of the most important issues in the current debate on intangibles is how the accounting model should be modified to allow room for information on the impact of intangibles on the firm’s financial position.19 Two alternatives have been suggested in the literature: (i) including non-financial information and complementary statements as voluntary disclosures in the annual reports and, (ii) modifying the accounting principles and the criteria for recognition of assets in order to reflect intangibles in the balance sheet.

Lev [1997] adopted a more radical perspective strongly supporting the view that accounting needs a new set of standards for the recognition of intangibles that allow to give them the same treatment that tangible asset receive in the current accounting model. However, traditional financial statements do not necessarily have to be dismissed. Conversely, they may be used as a basis upon which non-financial data as well as information on intangible elements may be provided.

19 Power [1992] and Napier and Power [1992] provide a critical view on the development of the standard setting process, arguing that the debate on the accounting treatment of intangibles such as brands, is largely driven by prepare financial statements, rather than by their users.
Egginton [1990] discusses several possible approaches to the recognition of (separable and non-separable) intangibles within the framework of traditional (historical cost) accounting models, concluding that it is unlikely that the difficulties in the accounting recognition of intangibles will be resolved in the near future. However, he suggests six steps towards a principled approach to intangible asset reporting: (1) adoption of a definition of separable intangibles as entailing legal rights to economic benefits; (2) recognition of internally developed separable intangibles on bases consistent with the recognition of purchased separable intangibles; (3) use of capitalization weighted for the probability of recovery, and provisional capitalization of the cost of separable intangibles in circumstances where economic benefits have not yet been established with sufficient reliability for full capitalization; (4) recording of intangibles at amounts consistent with the accounting model in use, and in particular the avoidance of selective revaluations that give rise to a mixture of measurement bases in accounts; (5) consistent recognition in historical cost accounts of transactions that increase the value of assets under the historical cost model, and specifically, the recognition of purchased goodwill regardless of whether a combined enterprise is considered as having arisen from a merger or an acquisition; and (6) adoption of a test of the overall magnitude of intangibles recorded in accounts, which would provide the basis for adjustments to the recoverable amount of assets.

Lev and Zarowin [1999] proposed three measures to enhance the usefulness of financial reports to investors: first, to expand the disclosure of non-financial information and transforming it into financial variables which could be linked to the financial reporting system; second, to extensively capitalize intangible investments with directly attributable benefits aimed at improving the periodic matching of benefits with costs and providing unbiased measures of the book value of equity and earnings; and third, to improve the timeliness of the information as well as to provide forecasts of the future impact of intangibles in the financial position of the company. Therefore, Lev and Zarowin [1999] have suggested that the accounting system should be modified to allow the capitalization of intangible investments and their amortization along their economic life.

The use of non-financial information appears as an appropriate first step towards overcoming the limitations inherent to the accounting model [Wallman, 1995; Edvinson and Malone, 1997; Stewart, 1997; AICPA, 1994]. The evidence reported by Eccles and Mavrinac [1995] indicates that investors seem to be currently demanding increased non-financial disclosure. A more recent survey of investors’ use of information for investment decision making, conducted by the Ernst & Young Center for Business Innovation [1997], has revealed that shareholders rely on a broad range of non-financial factors and that they do appreciate investments in employee development, process quality and corporate innovations. The use of non-financial measures appears to be common practice nowadays among financial analysts. Based on a content analysis of over 300 investment reports and on the frequencies with which analysts used non-financial measures, Mavrinac and Boyle [1996] concluded that: (i) analysts considered a wide variety of non-financial issues; and, (ii) those who frequently take into account non-financial issues have, on average, a higher predictive accuracy. This is consistent with the results of Barth, Kasznick and McNichols [1999], who found that analysts coverage is higher for firms with more intangible assets (greater investments in R&D) as a result of the lack of value-relevance of their earnings figures, and that it takes a greater effort to follow firms with intangible assets.
Mortensen, Eustace and Lannoo [1997] suggested that a first significant step would be the disclosure of quantitative (financial) desegregated information about expenditures on intangibles, regardless of whether or not they are expensed or capitalized. A second step would be to capitalize internally generated intangible assets following certain valuation rules that are generally accepted for tangible assets. At this point, both steps appear to be far from being feasible except in a small number of cases in which firms voluntarily decide to disclose that information.

In sum, policy makers and standard setting bodies are currently faced with a remarkable challenge: since most current accounting systems have proven to be incapable of appropriately reflecting intangibles, a careful revision of accounting standards should be undertaken in order to provide investors with financial statements that are not only reliable but also relevant (hence, useful) for decision making. Once the relevance of intangibles has been revealed by empirical studies and the need to include information on intangible investments in the financial statements has been demonstrated, it is up to policy makers and standard setting bodies to undertake the changes in the most appropriate manner.

5.2 A View of Future Prospects

The need for an improvement of the current accounting model has been pointed out by both the professional and the academic communities [Davis, 1992; Wallman, 1995; Lev, 1996; Tollington, 1997]. This seems to have lead some of the world's most influential standard setting bodies to undertake efforts intended to enhance the relevance of the accounting numbers for efficient decision making.

The American Institute of Certified Public Accountants Special Committee on Financial Reporting [AICPA, 1994] suggested that corporate annual reports should include more forward-looking information and discussions of the non-financial performance factors that create longer-term value. Moreover, the AICPA's Accounting Standards Executive Committee [AICPA, 1993] issued a statement of opinion intended to lay down the basis for the disclosure of information on the costs of activities such as advertising that are intended to create future economic benefits. According to SOP 97-3, all advertising costs must be expended in the year they are incurred, unless it is direct-response advertising that results in probable economic benefits. The statement suggests the cost of the future benefits of direct-response advertising should be recognized as assets and amortized over the estimated benefit period.

In its 1993 position paper on the future of financial reporting, the Association for Investment Management and Research stated that, in order to make sound judgments and draw rational conclusions, financial analysts need to know management's views and expectations on the future financial and strategic position of the firm [Knutson, 1993].

The U S Securities and Exchange Commission seems to be also supporting the view that significant changes need to be introduced in the current accounting model. Wallman [1995] argued that the issue is not whether we should continue to tinker with the existing financial reporting system, but whether we have the knowledge, courage, and vision to evaluate and make forward looking changes in our reporting system that will avail investors the most relevant and useful information.

The FASB also seems to be willing to devote efforts to the improvement of the ability of financial statements to provide information on the intangible determinants of
the value of companies, as it has recently asked the big accounting firms to carry out an analysis of the information needs of investors and creditors regarding intangibles. Hopefully, this will lead to an enhancement of the usefulness of accounting numbers for investment and credit decision making.

It is clear that traditional financial statements fail to provide users with relevant information on the intangible determinants of the firms’ financial position. However, the abandonment of the current accounting model does not seem like a plausible course of action in the near future. For some of the information in the annual accounts is indeed relevant and, on the other hand, the costs associated to a radical change in the accounting system of reporting would be unaffordable. Therefore, it appears that the most sensible approach towards the enhancement of the usefulness of financial statements is to encourage voluntary disclosure and develop complementary statements within the framework of the current accounting model.

Two major obstacles for the disclosure of relevant information on intangibles in the annual accounts have already been discussed: the lack of a widely accepted definition and classification of intangibles and the absence of criteria for their recognition, measurement and reporting. However, there may be also obstacles related to the incentives of managers and shareholders.

The disclosure of information on intangibles in the annual accounts might appear as a desirable option and as a threat for both, managers and stakeholders. Jensen and Meckling [1976] argued that full disclosure tends to reduce the cost of capital as it reduces the uncertainty facing investors in capital markets. Thus, managers should be willing to disclose sufficient information on the firms’ intangibles capitalizing purchased and internally generated intangible assets, as that would result in higher earnings and book value of equity and would therefore provide a better view of the financial position of the firm. However, they may also have incentives for expensing intangible investments as incurred.20 Aboody and Lev [1999] have found that the capitalization of development expenditures in the software industry may not be attractive once firms have reached a state in which tax savings are no longer significant. As suggested by Hirschey and Weygandt [1985], the immediate expense of advertising and R&D for tax purposes, rather than their capitalization and subsequent amortization, results in an implicit tax subsidy for advertising and R&D intensive firms. Thus, managers may prefer not to capitalize intangible investments to take advantage of the tax subsidy. Moreover, managers may see requirements for full disclosure as a threat, since the competitive position of the company may depend to a great extent on the nature and value of its intangibles, and disclosures may help competitors neutralize competitive advantages.

On the other hand, shareholders are likely to welcome any item of information that reduces the uncertainty on firm’s future stream of earnings. However, they may also be reluctant to see increased disclosure on issues that represent the firm’s competitive advantage, as that might have a negative impact on its future return on equity. Thus, managers and shareholders may have strong reasons both in favor and against disclosing information on the firm’s intangibles. However, increasing the amount and quality of the information on intangibles in the financial statements may help reduce the volatility of knowledge-based and technology intensive companies’ shares, whose

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20 Brief [1997] provides a theoretical analysis of managers’ incentives to capitalize or expense R&D, concluding that those seeking to maximize the accounting internal rate of return in the long-run (short-run) would (not) switch from capitalizing to expensing R&D.
value may not be appraised accurately by investors if they lack information about the economic nature of the activity carried out by these firms.

Accounting harmonization has recently become an issue of great relevance as a result of the pressure exerted by multinational enterprises on the main international accounting standard setting bodies. The agreement between the IASC and the IOSCO to undertake a joint project aimed at establishing a set of international accounting standards that will eventually be accepted by all stock exchanges in the world, may make the IASC the leading international accounting standard setting body in the world. Unfortunately, in its recently issued IAS 38, the IASC has adopted a rather restrictive and conservative approach towards accounting for intangibles, in line with the standards issued to date by the FASB. Thus, reliability has again been the main concern of standard setters to the detriment of relevance. This may be understood as a consequence of the IASC’s desire not to deviate substantially from US GAAP in order to ensure the IASs will receive the approval of the SEC.

6.0 SUMMARY AND CONCLUDING REMARKS

As we enter the second millenium we are witnessing one of the most critical moments in the history of accounting. Since developed economies have become knowledge-based and technology-intensive, our view of the firm has significantly changed and intangible elements have become fundamental determinants of value. Thus far, accounting has failed to provide an accurate view of intangible value drivers and therefore traditional (historical cost) financial statements have experienced a significant loss of relevance (although they still appear as reliable). As a consequence, there is currently a significant gap between the accounting estimate of the firm’s value (the book value shareholders’ equity) and its market value. In this scenario, standard setting bodies are facing the need to develop new guidelines for the recognition, valuation and reporting of intangibles.

The first step in that direction is the achievement of a consensus on the economic nature, definition and classification of intangibles. For only on the basis of that consensus, will it be possible for policy makers to issue new standards for the recognition of intangibles in firms’ financial statements. With that in mind, this paper has presented a review of the literature published in recent years, which deals with the economic nature, definition, classification, recognition and value relevance of intangibles.

Based on an extensive review of the literature, we have presented a discussion that may be taken as a starting point to reach an agreement on the economic nature of intangibles as well as on their basic characteristics. However, there seems to be a great heterogeneity in the classifications of intangibles proposed in the literature. This leads us to think that additional efforts are needed in that direction.

The value relevance of intangibles has been extensively documented in the literature. Whereas R&D has always found to be related to subsequent earnings and stock returns, the impact of advertising on future earnings has been found to be rather short-lived. This provides support to the view that R&D expenses should be capitalized, while advertising costs should be fully expensed in the period in which they are incurred.

Future research should be aimed at providing a consistent basis for the development of a set of guidelines for the identification, measurement, reporting and management of value relevant intangibles. Further efforts are needed in order to understand the
behavior of investors with respect to intangibles information (as in Nixon [1996]). However, future studies should not only focus on R&D and advertising, but also consider other intangibles among the possible determinants of the value of companies. The empirical evidence provided by the studies reviewed in our survey is in most cases scarce and not conclusive, thus calling for further research efforts in this area.

On the other hand, surveys of best practices in the management of intangibles, such as those conducted by Johanson et al. [1999] and Rouhesmaa [1996], are likely to provide interesting insights on the nature and relevance of intangibles. These surveys could also assist in developing a classification of intangibles with potential for wide acceptance.

The evidence provided by these studies would be of help to standard setting bodies and policy makers, as they clearly show that intangibles are among the fundamental determinants of the financial position of firms and, therefore, should be identified, measured and reported in the financial statements.
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