

American Accounting Association Financial Accounting Standards Committee
**Response to the FASB's Recent Initiatives Regarding the Disclosure of Information
About Intangibles**

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Preamble

The Financial Accounting Standards Committee of the American Accounting Association (hereafter, the Committee) is charged with responding to requests for input from standard-setters on financial reporting issues. In September of last year, we responded to the FASB's invitation to comment on the Proposal for a New Agenda Project – Disclosure of Information About Intangible Assets Not Recognized in Financial Statements. At that time, we indicated that we would also prepare a more thorough summary of research on intangibles, which is what this document comprises. Since that time, the FASB has decided to add a project titled *Disclosure of Information About Intangible Assets Not Recognized in Financial Statements* to its technical agenda, so our report should be helpful as the FASB begins its deliberations on this topic. The opinions in this letter reflect the views of the individuals on the Committee and not those of the American Accounting Association.

Scope

This document summarizes academic research on the disclosure and recognition of intangible assets, broadly defined. We do not limit discussion to the current FASB proposal to limit the scope of the intangibles project to intangible assets that are currently recognized if acquired in business combination but not if developed internally under FASB Statement No. 141, *Business Combinations*.¹ Nor do we limit ourselves to the current FASB proposal to mandate disclosure but not recognition of intangibles. We also note that there is some overlap between this document and our related and contemporaneous work on non-financial performance measures.

Overview, Summary, and Conclusions

The Committee is broadly supportive of the FASB's decision to add a project that considers issues related to the disclosure and recognition of intangibles. In particular, we agree that there are currently inconsistencies in the accounting treatment of economically similar intangibles; for example, the difference between the treatment of intangibles acquired externally and those developed internally.

We categorize research on intangibles according to eight broad research questions that we see as having been addressed in this area. We note at the outset that most research on intangibles is empirical in nature and focuses on R&D-related intangibles as we discuss in the next section. The eight research questions and associated evidence may be summarized as follows.

¹ Information on the status of FASB deliberations is obtained from their website "Disclosure About Intangibles Assets," most recently updated March 7, 2002 (<http://www.fasb.org/tech/index.html>).

1. Some commentators assert that intangibles are playing an increasingly important role in the economy but that the current accounting model does not adequately capture their value. According to this argument, traditional financial statements are becoming less relevant to investors and so are losing “market share.” Several research papers address the question of whether the relevance of financial statement information has declined through time. Overall, the evidence on this question is mixed: some studies find empirical support for a decline in value relevance while other studies find little evidence of any systematic change. This is true even for research that focuses on the technology sector, where any problem would likely be the most acute.
2. A basic question pertinent to whether information about intangibles should be included in financial statements is whether equity market participants use intangibles information in pricing stocks. A large number of papers address the “value relevance” of intangibles. In general, these papers find that intangibles information is associated with stock prices, although in many cases not to the same extent as conventionally recognized assets. Thus, it appears that intangibles information is of some use to investors. However, there is a good deal of controversy in the profession about the extent to which this research has implications for standard-setting in light of potentially important methodological problems that cloud the authors’ interpretation of their results. We therefore advise caution in interpreting the results of these studies in the context of recognition and disclosure decisions.
3. Some recent studies ask whether information disclosed in financial statements about intangibles (mostly R&D-based intangibles) is appropriately processed by investors. In particular, a number of studies find that investors appear to systematically undervalue R&D intensive firms – in other words, the market appears to under-appreciate the value of R&D spending at the time it takes place, with prices adjusting upwards over time as the benefits of that R&D are realized. Taken at face value, this evidence suggests that the conservative accounting treatment of R&D expenditures for US companies causes investors to systematically undervalue these firms. However, the results in this area are again subject to dispute, with other authors arguing that researchers systematically underestimate the risk of R&D firms, and that there is in fact no evidence of mispricing when the risk of these firms is measured correctly.
4. One important question relating to the possible capitalization of intangibles expenditures is whether these expenditures have probable future economic benefits. To address this question, researchers assess the relation between today’s intangibles expenditures and future period’s revenues and earnings. These studies typically find that higher current period R&D expenditures are associated with higher earnings in future periods. However, there are again questions about whether the *associations* present in the data allow us to make *causal* inferences about the link between these variables. Assuming this research can be interpreted as implying a causal association between these variables, these results imply that expenditures on intangibles have future benefits, supporting capitalization.
5. The argument against the capitalization of R&D expenditures (and other intangibles) has traditionally been that the payoff to these investments is more uncertain than those to other types of expenditures that are typically capitalized. Two studies explicitly investigate whether investments in R&D are more risky than those in other projects. Perhaps not surprisingly, both studies find evidence consistent with the idea that investments in R&D are, in fact, more risky than those on other projects.
6. There is little reliable evidence that the introduction of FASB Statement No. 2 *Accounting for Research and Development Costs* (hereafter FAS-2) had an adverse effect on R&D spending. However, there is evidence that managers adjust the level of their firms’ R&D expenditures to achieve earnings targets. This evidence suggests that the

- conservative nature of the accounting rule has had “economic consequences” in the sense of altering managers’ investment decisions.
7. A large body of research in accounting shows that managers’ financial accounting choices reflect their incentives, especially those provided by their firms’ contracts. Although there is only one such study on intangibles, we would expect such incentives to impact managers’ financial reporting decisions in the area of intangibles, especially since choices in this area are likely to be relatively more subjective.
 8. There is little evidence on the costs and benefits of intangibles disclosures. However, two papers report that investors in R&D intensive firms face relatively larger informational asymmetries, leading to lower market liquidity. This suggests that there are potential benefits associated with greater disclosure. However, there are also likely to be non-trivial costs associated with intangibles disclosures, including costs associated with measuring intangibles and proprietary costs of disclosing such information to competitors.

Overall, the evidence from intangibles research leads us to draw several conclusions. First, it is clear that intangibles information is associated with equity prices, consistent with the idea that this information is useful to investors. There is also some evidence that investors underappreciate the benefits associated with current investments in intangibles, in the sense that R&D intensive firms appear to be systematically undervalued by market participants. Second, there is evidence of a link between current-period expenditures on intangibles and future earnings realizations, as we would expect if these expenditures have future benefits. In addition, there is evidence that these benefits are more uncertain than those associated with expenditures that we normally capitalize, consistent with investments in intangibles being more risky. In general, these associations lead us to conclude that information on intangibles expenditures is useful to investors, and that there is some empirical support for arguments in favor of the capitalization of R&D intangibles.

Nevertheless, we would encourage the FASB to proceed cautiously down the path of disclosing and recognizing information on intangibles, given that significant uncertainties exist in this area. First, serious questions exist about how to interpret research on intangibles, especially with respect to value relevance research and its implications for standard setting. While research is able to document *associations* in the data (between intangibles information and equity values), limitations with current research designs make *causal* inference difficult. Second, we have little evidence on how managers would actually measure, disclose, and recognize intangibles information. However, we do know that in other areas managers’ accounting and disclosure choices reflect their incentives in the financial reporting process, which leads us to suspect that they would do so in the intangibles area as well, especially given the extra judgment that is likely to be necessary in this area. Third, for data availability reasons, virtually all of the research in this area is based on R&D expenditures. It is not clear how easily these research results generalize to other types of intangibles. Finally, we know little about the costs and benefits of disclosure in the area of intangibles. Preparers are likely to have legitimate concerns about the proprietary nature of this information, although we have almost no hard evidence on this. Moreover, given the economically-varied nature of intangibles and the fact that few standards exist to guide the aggregation and summarization of intangibles data, there are questions about how exactly any FASB mandates on disclosure would be implemented. The fact that few firms have voluntarily chosen to disclose information about intangibles to investors suggests caution in simply assuming that intangibles disclosures will have net benefits.

Why does research focus on intangibles generated by R&D expenditures?

The large majority of research on intangibles focuses on intangibles generated by R&D expenditures. The reason for this emphasis is pragmatic rather than conceptual: data on R&D spending is widely available in machine-readable form from research databases such as *Standard and Poor's Compustat*. This data availability results, in turn, from the fact that R&D expenditures must be disclosed separately in the financial statements under FAS-2 (at paragraph 13). Expenditures on other types of intangibles do not have to be separately disclosed and so are usually combined with other expenses on the income statement. As Lev (2001, pp. 54-55) observes, the fact that data on the components of other types of intangibles expenditures are not separately reported in financial statements hinders research in this area.

One question that arises as a result of the research focus on R&D is whether the results of this research are generalizable to other types of intangibles. It seems to us that the answer to this question turns on whether R&D assets are economically similar to other intangibles and how familiar investors are with information about other types of intangibles. Because of the long-standing disclosures in this area, investors are likely to have more familiarity with information about firms' R&D activities than with information about other types of intangibles. Or, consider research that shows that higher R&D expenditures in the current period are associated with higher revenues and earnings in future periods, thus demonstrating that R&D expenditures have future benefits. Some use this evidence to argue that R&D expenditures, like expenditures on plant and equipment, have probable future economic benefits and so should be capitalized, and then extend this argument to other intangibles as well. However, if the economic process involved in developing these other intangibles is different from that of R&D intangibles (as seems likely), it is not clear that this evidence has direct implications for other types of intangibles.

1. Has the relevance of financial statement information declined through time?

A number of well-known commentators such as Robert Elliott, Steven Wallman, and Baruch Lev assert that intangible assets are playing an increasingly important role in the economy. According to this argument, information about these assets is not adequately reflected in traditional financial statements, which has led to a decline in the relevance of these statements through time. This argument was fueled by the large run-up in US equity prices relative to book values during the 1990s, especially for technology firms. Motivated by these assertions, several papers address the question of whether financial statement information has become less relevant through time.

The principal studies are those by Brown, Lo, and Lys (1999), Chang (1999), Collins, Maydew, and Weiss (1997), and Francis and Schipper (1999).² The papers by Collins, Maydew, and Weiss (1997) and Francis and Schipper (1999) are similar in both their broad empirical approach and the tenor of their results. The general approach is to regress stock prices on financial statement measures of earnings and book values to investigate whether the explanatory power of these variables for stock prices (their "value relevance") has changed over time. The authors find little evidence that the overall value relevance of financial statements has declined through time, although both papers report some evidence that the balance sheet has increased in importance relative to the income statement. Both papers also investigate whether these results vary across industries, and look specifically at high technology (potentially high intangible) firms, but find little support for the view that the results are different for high technology firms.

² As is the case throughout this report, we do not mean to imply that this is a comprehensive list of papers in this area. Rather, our goal is to choose some representative papers to give the reader a sense for the broad methodological approaches and results in each area.

Brown et al. (1999) and Chang (1999) raise questions about the inferences of these studies on statistical (econometric) grounds.³ After correcting for these statistical problems, these authors conclude that there is, in fact, a decline in the value relevance of financial statement information (earnings and book value) through time.

Finally, a recent paper by Core, Guay, and Van Buskirk (2002) examines the explanatory power and stability of a regression model of equity values on traditional financial variables over a 25-year period ending in 2000. The motivation is to see whether equity valuation differs in the recent “New Economy” period compared to prior periods. The authors examine the population of publicly-traded firms, along with subsamples of high-technology firms, young firms, and young firms with losses. The authors find that the explanatory power of these regressions has declined through time but that this has occurred for all groups of firms and that the basic structure of the model has remained stable over the entire period. Overall, the authors find little evidence of a change in the fundamental determinants of equity values through time.

Overall, perhaps the best summary of research in this area is that the results are “mixed,” so that there is no clear evidence of a decline in the value relevance of financial statement information through time, even when one just considers (say) “technology” stocks. Thus, there is no clear evidence that traditional financial statements have become less relevant to investors through time, which is inconsistent with the overall tenor of the arguments made by commentators.

2. Is information about intangibles ‘value relevant’ to investors?

The goal of value relevance studies is to assess the extent to which a given number, usually one that is recognized or disclosed in the financial statements, is associated with stock prices. If it is, the number is said to be “value relevant” to investors. The value relevance literature has recently been surveyed by Holthausen and Watts (2001), who critique the literature and especially the extent to which results in this area have implications for standard-setting.⁴ We first provide a summary of the results from value relevance papers in the intangibles area. Then, because these studies are often used to support normative claims about standard-setting, we summarize the general problems in this area and then discuss why assessing the value relevance of information about intangible assets carries with it special difficulties.

In a typical value relevance study, the researcher regresses market value of equity (or stock price) on the book values of balance sheet assets, liabilities, and the researchers’ variable of interest (which is typically assumed to be available to investors, often through footnote disclosures). Inferences are then drawn about the variable of interest by assessing whether its coefficient is of the predicted sign and reliably different from zero, although sometimes researchers simply look to see if the coefficient is significantly different from zero.

³ Brown et al. argue that there are problems with comparing the explanatory power of regressions (“R-squares”) through time principally because of changes in the scale factor of the regression’s coefficient of variation.

⁴ Papers that make points similar to this will be familiar to attendees of the annual AAA/FASB Financial Reporting Issues Conferences; for example, see papers prepared for these conferences by Bernard and Schipper (1994), Holthausen and Palepu (1994) and Lambert (1996). Our discussion draws on points made in a steady stream of previous papers that discuss the limitations of value relevance research, especially in the context of standard setting, including Bernard and Schipper (1994), Holthausen and Palepu (1994), Lambert (1996), Skinner (1996, 1999), Ohlson (1998), and Holthausen and Watts (2001).

Intangibles studies in this area include the following:

- Lev and Sougiannis (1996) investigate the value relevance of book values and earnings numbers that are adjusted “as if” U.S. companies had capitalized and amortized R&D and advertising expenditures (see section 4 below for details of how they adjust the financial statements to capitalize R&D assets). They find that these adjustments are value relevant to investors.
- Barth, Clement, Foster, and Kasznik (1998) use data on brand values published in a financial magazine to investigate the value relevance of these brand values. The authors find that the coefficient on brand values is positive and statistically significant, although it is about half the size of the coefficient on the book value of recognized assets. One important question about this study relates to causality – is it the disclosed information about brand values that drives market prices, or is it market prices that drive firms’ estimates of their brand values? This is an example of a “reverse causality” problem.
- Gu and Lev (2001) study the value relevance of royalty income and find that royalty income is value relevant and is assigned a larger valuation coefficient than the other earnings components, perhaps because it is more permanent. However, the sample only includes firms that *choose* to disclose royalty income, so that the results may not generalize to all firms with royalty income (i.e., there is a potentially important *selection* problem with this sample, making inference difficult).
- Ittner and Larcker (1998) investigate and find that customer satisfaction (CS) data are value relevant: they find a reliably positive coefficient on the CS variable but that this coefficient is much less significant than those on recorded assets. However, the results vary a great deal across different industries and, as Lambert’s (1998) discussion of the paper points out, the specifications should include an earnings measure. Lambert also points out that the CS data were not actually available to investors on the dates that share prices were measured, increasing interpretational difficulties.
- Amir and Lev (1996) investigate and find that non-financial indicators of growth and performance are value relevant for firms in the cellular phone industry. Moreover, these authors find that for these firms traditional financial variables by themselves have little explanatory power, but that their explanatory power increases when combined with the non-financial measures. The authors argue that their results suggest complementarities between the non-financial and financial measures.
- Aboody and Lev (1998) investigate the value relevance of software development costs in the software industry. These authors find that the amounts capitalized each year are associated with contemporaneous stock returns, and that the amount of the associated asset is positively associated with stock prices. Once again, the coefficients on the R&D variables tend to be smaller than those on more conventional assets.
- Ely and Waymire (1999) provide evidence on the question of how investors might value intangible assets, if they were to be recognized, given concerns about the reliability of asset measurements. The authors use data from the “pre-SEC” era, when firms were able to capitalize intangibles, to assess the value relevance of intangible amounts recognized as assets. The authors find that investors tend to be skeptical of the capitalized intangible amounts, placing a smaller weight on the book value of the capitalized intangibles than they do on the book value of the tangibles assets.⁵

⁵ In his discussion of this paper, Zarowin (1999) makes the point that at the time, firms had a choice about whether to capitalize and amortize intangibles or to write them off immediately against equity “surplus.” He argues that firms that had the financial strength (i.e., a large enough surplus that the write-off did not reduce their ability to pay dividends) to do so preferred to take the write-off – these are the firms that have intangibles, but explicitly chose to report them at nominal amounts. Consequently, the study suffers from an important “selection bias” – the firms that capitalized intangibles were signaling a lack of financial

In general then, value relevance studies on intangibles find that information about intangibles is associated with equity prices, and so is “value relevant” to investors. However, a general problem with this approach is that it is a form of “association” study. In other words, the research tells us whether the information is *associated* with stock prices, but does not tell us anything about the economic reasons for this association; for example, we do not know whether the information contained in the financial statements was actually used by investors.⁶

A large part of the controversy surrounding value relevance research relates to its fundamental reliance on equity values. As Holthausen and Watts emphasize, financial statements serve many purposes other than as an input to equity valuation, so it is not clear why an association with equity prices should be the primary benchmark for making judgments about the efficacy of disclosing or recognizing particular types of information. For example, lenders are likely to be most keenly interested in the balance sheet as a means of assessing potential liquidation values, and so are likely to be interested in different measurement attributes for assets and liabilities than are equity market participants. In our context, intangible assets such as customer loyalty and employee morale are likely to be worth considerably more when the entity is a going concern than in liquidation. Thus, while equity values may be correlated with measures of the values of these intangibles when the entity is a going concern, it is unclear that this means that lenders would want to see these amounts recognized on the balance sheet as assets.⁷

Another problem with the reliance on equity values is that to interpret the results from value relevance studies, we have to rely on equity prices being, in some sense, “correct” or “efficient” – that the market is making correct assessments of value given the information available. To the extent we are not confident that the market is efficient in this manner, it is difficult to know what to make of correlations between equity valuations and the variables of interest.

A further problem that arises in interpreting these studies relates to what econometricians commonly call a “correlated omitted variables” problem. This simply means that because we have no very precise theories of how equity values map into balance sheet measurements of assets, liabilities, and the researcher’s variable of interest, it is hard to be sure that all value relevant variables have been included in the regressions. To take a simple example, if we regress stock prices on (per share) balance sheet asset and liability numbers, along with (let’s say) disclosed information about the value of off balance sheet intangibles, we cannot be sure what the coefficient on the intangibles variable is capturing. One thing we do know about equity values is that they reflect investors’ assessments of the future growth prospects of the company. If a reliable measure of this variable is not included in the regression, then it may be – if firms with relatively more off-balance sheet intangibles have larger growth prospects than other firms – that a significant coefficient on the intangibles variable simply captures growth prospects. In other words, in the presence of correlated omitted variables, a significant coefficient on the intangibles variable may obtain *even when investors are not using this information at all.*

strength, which potentially explains the negative/zero coefficients on intangibles. The other question he raises about the study is how “efficient” the stock market was in the 1920s.

⁶ In fact, some studies regress stock prices at December 31 of year *t* on financial statement data for the fiscal year ending on December 31 year *t*. This approach has been criticized because the year *t* financial statements are typically not available to investors until (in most cases) three or four months into year *t*+1 so it is hard to know how investors have access to the information to which they are supposedly responding.

⁷ This point has been reinforced by recent events. See, for example, “The Rise and Fall of Intangible Assets,” *The Wall Street Journal*, April 4, 2002, page one.

The problem works in the other direction as well – in the presence of correlated omitted variables (and the associated measurement error bias), the researcher may find statistically *insignificant* coefficients even when investors *are* using the information disclosed about the variable of interest (e.g., see Maddalla (1977, Ch. 13)). The fact that these problems can lead to incorrect inferences in both directions makes interpreting the results of value relevance studies particularly difficult.

To minimize these types of interpretational problems and help convince readers of the veracity of their inferences, researchers conducting value relevance studies ideally would take the following steps, which can then be used to gauge the extent to which we can rely on the research findings:

- Have a well-specified theory that allows clear predictions about the expected signs and magnitudes of the coefficients.⁸
- Employ a valuation model that minimizes the likelihood of any correlated-omitted variables problem (ideally all valuation-relevant variables are included and are measured without error). As the example given above illustrates, the failure to include measures of things like investors' expectations of future growth and profitability – variables that most valuation models point to as being important in equity valuation – leaves these studies open to alternative explanations.
- Demonstrate that the paper's results are robust to different samples and time periods. It is especially useful if the researcher can demonstrate that the results hold in “changes” form in addition to the “levels,” since this form of regression is much less susceptible to the correlated omitted variables problem described above. (It is much more difficult to attribute a relation between *changes* in stock prices and *changes* in the variable of interest to correlated omitted variables problems, so studies that report significant results from changes specifications are more compelling.)

The typical value relevance research design is especially problematic for intangibles. The reason for this is that intangible “assets” such as intellectual capital and customer loyalty tend to be very different in nature from those items that we normally recognize on the balance sheet (see Lev 2001, Ch.2, for a good discussion of the economic nature of intangible assets).⁹ First, many intangibles (for example, customer loyalty) are not separate and salable assets, making it difficult to reliably capture their separate effects in a regression – their value can only be measured as part of the residual value of the firm, that is, as part of goodwill.

Second, the balance sheet model only holds if well-functioning markets exist for the firm's assets and liabilities and these markets are competitive, so that these assets do not earn abnormal returns (economic rents).¹⁰ As Lev (2001) points out, intangibles have a number of unusual characteristics that make it difficult for expenditures on intangibles to meet current asset recognition criteria. It is largely for these reasons that markets for intangibles are poorly formed,

⁸ In Aboody and Lev's (1998) value relevance study of software development costs, they find that the coefficient on the capitalized software development cost asset is smaller than that on the other assets, which the authors argue is due to investors “discounting” these costs. In her discussion, Eccher (1998) points out that we might expect this coefficient to be larger, not smaller, than those on other assets because not all software development costs get capitalized. It is hard to resolve this type of disagreement absent some theory that allows us to predict coefficient magnitudes.

⁹ This section draws on the discussion in Holthausen and Watts (2001, pp. 36, and 52-53).

¹⁰ This is the likely reason some of the first value relevance studies were conducted to assess the value relevance of the fair value of marketable securities, an asset class for which these assumptions are essentially met.

making value relevance studies especially difficult to interpret in this area. These unusual characteristics may be summarized as follows (see Lev, 2001, Ch. 2).

- Partial excludability and “spillovers.” The well-defined property rights of physical and financial assets that effectively exclude others from enjoying the benefits do not extend to many intangibles. Spillovers occur when other entities can enjoy some of the benefits from intangibles. Lev (2001, p. 33) uses as an example the fact that the benefits that a company obtains from employee training will be transferred to subsequent employers if the employee leaves the original company. Lev argues that one effect of this is that these intangibles do not meet accounting asset-recognition criteria that assets must be under the effective control of the entity.
- The absence of organized and liquid markets in intangibles.
- The difficulty in writing complete contracts for intangibles – these are contracts that completely specify contractual outcomes in all possible states of the world.

To summarize this section, in general value relevance research finds that intangibles information is associated with stock prices, although in many cases not to the same extent as conventionally recognized assets. Thus, it appears that intangibles information is of some use to investors.¹¹ However, there is a good deal of controversy in the profession about whether this research has implications for standard-setting given potentially important methodological problems.

3. Does the market appropriately assess the implications of current R&D spending?

Beginning with Lev and Sougiannis (1996), a number of studies have found that stock returns are associated with the level of firm’s R&D expenditures in periods *after* those expenditures are made and reported to investors (see, for example, Chambers, Jennings, and Thompson 2001, Chan, Lakonishok, and Sougiannis 2001, Lev, Nissim, and Thomas 2002, and Penman and Zhang 2002). If securities markets are efficient, this evidence is puzzling because it suggests that investors do not quickly and in an unbiased way assess the implications of current R&D spending for the future earnings potential of the firm, leading them to systematically undervalue high R&D firms. As the benefits of these expenditures are subsequently realized in earnings, this undervaluation is corrected, leading to abnormal return performance. However, as is commonly the case with studies of stock market “anomalies” (that is, studies that provide evidence inconsistent with market efficiency), an alternative interpretation is that researchers in these studies systematically mismeasure the risk of these firms, and that the apparent abnormal returns documented by these studies simply reflect the extra risk of these firms, rather than mispricing.

Assuming this evidence can be interpreted as evidence of market inefficiency, it suggests that investors systematically underestimate the value of firms’ R&D programs. While it is unclear what the FASB can or should do about this (indeed, apparently profitable trading strategies have been documented based on much more basic accounting numbers, such as quarterly earnings reports and the accruals component of earnings¹²), the result is worth noting, if only because it tells us that investors may not fully understand the valuation implications of R&D spending.¹³

¹¹ There is also some event study evidence which suggests that information about firms’ R&D spending has information content, in the sense that R&D spending announcements are associated with changes in stock prices. For example, see Chan, Martin, and Kensing (1990).

¹² See Bernard and Thomas (1990) and Sloan (1996) respectively.

¹³ Notice also that this has implications for how we interpret the results of value relevance studies, which rely on market prices being correctly formed.

4. Does spending on intangibles generate future benefits?

One of the key empirical questions in research on intangibles is whether there is a link between current expenditures and future revenues and earnings. If such a link can be established then it becomes a lot easier to argue that those expenditures meet current asset recognition criteria.

Perhaps the best known and most carefully developed study in this area is Lev and Sougiannis (1996). These authors first develop a model of the relation between firm earnings (output) and its investment inputs, including expenditures on R&D and advertising. The authors then estimate this model and report that:

- The average duration of R&D benefits varies across industries from 5 to 9 years. The authors argue that these differences reflect differences in the ability of firms to appropriate the benefits of their R&D programs.
- The estimated benefits of these R&D programs vary from \$1.66 to \$2.63 per dollar of R&D spending – numbers that seem large but which they point out are undiscounted and accrue over 5 to 9 years. They then impute an internal rate of return on R&D that varies from 15% to 28%. They argue this is reasonable on a pretax, operating income basis.¹⁴

The authors use these estimates to construct adjusted book values and earnings numbers for these firms “as if” the R&D expenditures had been capitalized and amortized. They then calculate differences between these “as if” numbers and those originally reported, and report that these differences are “substantial.” This implies, not too surprisingly, that a policy of capitalizing and amortizing R&D expenditures, rather than immediate expensing, would have a material effect on firms’ financial statements.

Other papers report similar types of results. For example, in their study of software development costs, Aboody and Lev (1998) report that the amount capitalized helps predict one- and two-year ahead earnings changes, with a larger coefficient on capitalized costs than on costs that are expensed. Barth et al. (1998) report that brand values are correlated with future operating margins and market share.

Once again though, these types of results are difficult to interpret in the absence of a well-specified theory that allows clear predictions about expected coefficient signs and magnitudes. One criticism of this research is that the observed positive relation between this period’s expenditures and future periods’ earnings is confounded by increases in the scale of the firm’s investment base.¹⁵ That is, if the firms chosen in these studies are growing through time so that their asset bases are increasing, we would *naturally* expect to observe increases in the level of future earnings even if the particular expenditures being considered in these studies are unproductive. This is similar to one of the general problems of value relevance studies – when

¹⁴ More specifically, Lev and Sougiannis estimate the following model using an instrumental variables approach.

$$OI/S = \alpha_0 + \alpha_1(TA/S)_{i,t-1} + \sum_k \alpha_{2k}(RD/S)_{i,t-k} + \alpha_3(AD/S)_{i,t-1} + e_{it}$$

This regression can be interpreted in such a way that: (1) the sum of the RD coefficients ($\sum_k \alpha_{2k}$) reflects the total (undiscounted) effect of \$1 invested in R&D on current and future operating income, (2) the amortization rate for each year is that year’s regression coefficient divided by the sum of the coefficients, and (3) the number of statistically significant lagged R&D coefficients is the average duration of R&D benefits (life of the R&D asset).

¹⁵ See, for example, Sloan (1999).

one regresses “levels” on “levels” there are many plausible alternative explanations for the observed relations.

One of the problems with using empirical data is that we cannot observe the effect of accounting rules that are not available to companies. Thus, in the US, we only have recent data on the relation between accounting numbers and stock returns under a regime in which R&D costs are immediately expensed. In an interesting study, Healy, Myers, and Howe (2002) use simulation analysis to compare the effects of three possible alternative accounting methods for R&D – “successful efforts,” “full cost,” and “cash” (immediate write-off). The paper reports the effect of these alternatives on: (1) reported accounting numbers (earnings, book values, and ROE); (2) the value relevance of R&D numbers, where value is a simulated economic return; and (3) the usefulness of lagged market-to-book numbers for forecasting current economic values. They find that the successful efforts method tends to dominate in these tests – it is more highly associated with returns and results in higher forecast accuracy. They attribute this mainly to the fact that under this method there is a fairly strong relation between R&D write-downs and value changes.

Overall then, the research finds that current period expenditures are associated, on average, with future period earnings. Assuming this research can be interpreted as implying a causal association between these variables, it implies that expenditures on intangibles have future benefits, supporting capitalization.

5. Are the benefits associated with intangibles expenditures more uncertain than those associated with other types of expenditures?

The studies in the previous section look at the link between today’s intangibles expenditures and the future benefits of those expenditures. There is also research on the relative risk of investments in R&D projects.

Under current U.S. GAAP expenditures incurred in the acquisition of property, plant, and equipment (PP&E) are capitalized while those incurred on R&D projects are expensed. A large part of the rationale for this different accounting treatment is the differential certainty of future benefits. The objective of Kothari, Laguerre, and Leone (1998) is to explicitly compare the uncertainty of benefits associated with expenditures on R&D and PP&E. To do this, these authors regress measures of future earnings variability (their measure of the uncertainty of future benefits) on R&D and PP&E spending, as well as on control variables such as firm size and leverage. They find that the coefficient on R&D is about three times as large as that on PP&E, and conclude that the future benefits of R&D spending are more uncertain and so less reliable than those of PP&E spending. They argue that the more uncertain benefits of R&D expenditures help explain and justify the more conservative accounting treatment of R&D costs.

Shi (2002) analyzes the relation between bond prices and various measures of R&D expenditures. This is an interesting approach, because instead of taking an equity market perspective (as the value relevance papers do) he adopts a bondholders’ perspective. He finds fairly consistent evidence that the relative amount of R&D spending undertaken by firms is positively associated with bond risk premia and default risk. This suggests that, on average, R&D spending increases the risk of bondholders’ claims on the firm. The theory is based on corporate finance – whereas for equities (which can be thought of as call options on the value of the firm) increases in both the mean and variance of the return on the firm’s assets increase value, for debt the mean effect is positive but the variance effect is negative – the value of bondholders’ claims declines as the firm’s assets get riskier. Thus, Shi interprets his evidence as saying that, on average, the negative variance effect of R&D projects outweighs the positive mean effect, so that R&D projects, on

average, reduce the value of bondholders' claims. He offers his evidence as an interesting counterpoint to the normal "value relevance" studies, and interprets his evidence as demonstrating the fact that R&D projects are substantially more risky than other types of projects.

In our view, the results of these studies are not very surprising – it is intuitive that the payoffs to R&D projects are likely to be more uncertain than those to (say) expenditures on plant and equipment. Nor is the tenor of the results of the studies discussed in the previous section very surprising – on average, we expect R&D to have net benefits to firms, otherwise they would not continue to engage in R&D activity. The key question is whether the benefits are sufficiently probable as to justify recognition in the financial statements and outweigh the greater uncertainty, a judgment that research alone cannot answer.

6. Do managers change their spending on R&D depending on the accounting recognition rule? Research on the "economic consequences" of FAS-2.

A number of early studies exploit the FASB rule change on accounting for R&D costs to investigate the "economic consequences" of this accounting rule. For example, Dukes, Dyckman, and Elliott (1980) examine whether the level of R&D spending was reduced by the passage of this rule, as we might expect if the expensing treatment discouraged R&D spending because of the adverse effect on reported earnings. Unfortunately, as Ball's (1980) discussion of this paper makes clear, the evidence from studies such as this is difficult to interpret largely because the results are confounded by other economic changes that occur around the same time (the effects of the Arab oil embargo and recession), as well as by important selection biases.

Another set of studies investigates whether managers' R&D spending decisions are affected by financial reporting considerations. For example Baber, Fairfield, and Haggard (1991) find evidence suggesting that managers reduce R&D expenditures when this would allow them to meet pre-specified earnings targets. They find no evidence of similar reductions in discretionary spending for capitalizable expenditures. Bushee (1998) also finds that managers reduce R&D expenditures to meet short-term earnings targets, and that these incentives are mitigated for firms with high levels of institutional ownership. Dechow and Sloan (1991) find evidence that managers tend to reduce their firms' R&D expenditures when the managers are towards the end of their careers, when they will suffer less from the adverse long-run effects of reducing these expenditures.

Overall, while it is difficult to compare firms' R&D expenditures before and after FAS-2 and so reliably assess whether this statement reduced firms' propensity to incur R&D expenditures, there is fairly consistent evidence that the level of firms' R&D expenditures are affected by their managers' incentives to achieve earnings goals.

7. Are managers' intangibles recognition choices affected by their incentives under firm contracts?

One question likely to be of interest to standard-setters in the intangibles area is the reliability (or lack thereof) of management's estimates of the value of intangible assets, whether reported in footnotes or recognized on the balance sheet. One way of assessing reliability is to examine whether these estimates are associated with either stock prices or measures of future performance, as discussed in sections 2 and 4 above. An alternative approach is to try and understand the factors that affect managers' choices of particular estimates to try and distinguish whether: (1) managers are making these estimates in a good faith, unbiased way, or (2) managers are making

“opportunistic” choices to make themselves (or other groups of claimants such as stockholders) better off at the expense of other groups of claimants.

One of the few studies in this area is Muller (1999). Muller looks at a set of firms in the United Kingdom (U.K.) and examines their managers’ decisions regarding whether to recognize an asset for the value of acquired brands in acquisitions. At the time of the study, the suggested method of accounting for purchase acquisitions was to recognize goodwill but then immediately write the full amount of this goodwill off to equity. Alternatively, to avoid the adverse affect on book values that such a treatment would have, managers could choose to capitalize part of the goodwill as a brand name intangible asset.

In the study, Muller compares the 33 firms that capitalize the costs of acquired brand names to a matched set of “control” firms that do not capitalize these costs. Muller finds that two contracting explanations influence managers’ decisions to capitalize. First, London Stock Exchange rules require shareholder approval for acquisitions above a certain size threshold measured using reported book values. Muller finds that firms that are likely to bear the largest costs from this rule are less likely to capitalize brands, minimizing their stated book values and reducing the likelihood that shareholder approval is required for acquisitions. Second, consistent with the conventional debt-equity argument in the literature (that firms with higher leverage are likely to be closer to debt covenant constraints), Muller finds that firms with higher leverage are more likely to capitalize the value of brands, reducing book measures of leverage.

As Sloan observes, Muller’s results are interesting because they suggest that managers’ recognition decisions are strongly influenced by contracting incentives, indicating that they exercise considerable discretion over such decisions, compromising the reliability of managers’ estimates of the value of intangibles. When combined with the extensive literature showing that managers’ accounting choices tend to be influenced by their economic circumstances, especially incentives provided by the firm’s contracts (e.g., Healy and Wahlen 1999), these results suggest that managers’ reporting decisions with respect to intangibles will be influenced by their incentives.¹⁶

8. Does the disclosure of intangibles information have net benefits?

As discussed in our letter last fall, we have little evidence that speaks to the benefits versus costs of disclosures on intangibles. If the FASB is to step in and (say) mandate the disclosure of certain information on intangibles, a question that seems relevant is: why have firms chosen not to disclose this information voluntarily?¹⁷ One answer is that there are likely to be costs associated with such disclosures, including both costs associated with measuring intangibles and the proprietary costs associated with disclosing this information to competitors. Another answer may be that the benefits of these disclosures are not very large, perhaps because these disclosures

¹⁶ Although there is no formal research on this topic, a clear example of the likely flexibility available to companies in the intangibles area is the recent experience with the valuation of acquired in-process research and development expenditures (IPR&D). In particular, after the SEC decided to clamp down on the practice of allocating and then writing off a considerable fraction of the acquisition premium associated with purchase acquisitions to IPR&D, the fraction allocated to IPR&D fell dramatically, apparently indicating the considerable amount of discretion available to managers in this area. See “Merging firms renounce write-offs for R&D costs,” *The Wall Street Journal*, March 22, 1999.

¹⁷ The relatively low level of voluntary disclosure in the intangibles area is documented in the recent Steering Committee Report of the Business Reporting Research Project, “Improving Business Reporting: Insights into Enhancing Voluntary Disclosures” (FASB, 2001).

are not very informative to investors due to low relevance or imprecise measurement. Whatever the case, it seems to us that the relatively low levels of voluntary disclosure in the intangibles area at least raise the possibility that disclosures in this area do not provide net benefits.

With respect to costs of disclosures, one area in which we would like to see more research evidence is on the question of the magnitude of proprietary costs, since preparers frequently argue that these costs are “large” and outweigh the benefits of disclosure. It is hard to get direct evidence on the magnitude of these costs. Gu and Lev (2001), however, provide some tangential evidence on the magnitude of proprietary costs in a study that primarily addresses the value relevance of disclosed royalty income numbers. To conduct their study, these authors search annual reports/10Ks over 1990-98 for firms that (voluntarily) report royalty income separately, and obtain a sample of 198 companies. Not surprisingly, most firms are in R&D-intensive industries such as pharmaceuticals, electronics, and software. From a proprietary costs standpoint the interesting part of the study is that they report a slight decline in sample size through time, which they speculate may be due to an increasing reluctance of firms to disclose royalty income separately: most interestingly, they find that a number of firms report royalty income in the early sample years but then stop doing this. Thus, at least for some firms, proprietary costs seem to be important.

With respect to the benefits of disclosure, two recent papers address the fact that firms with relatively large investments in intangibles are likely to enjoy relatively larger benefits from disclosing information. One of the problems associated with the non-disclosure of value relevant information to investors is that it creates what economists call “information asymmetries” between informed investors (such as management) and external investors. These information asymmetries can be costly because they reduce the willingness of investors to trade (since they fear trading with those who are better informed) and so adversely affect market liquidity. Thus, one of the potential disclosure benefits is the reduction of these types of informational asymmetries. Two recent studies address this question in the context of financial reporting for R&D for U.S. firms, and both studies find evidence to support the view that the current accounting for R&D creates information asymmetries that adversely affect market liquidity. Aboody and Lev (2000) find, after controlling for other relevant variables, that gains from insider trading are larger for R&D intensive firms than for other firms, suggesting that insiders exploit their private information about the firm’s R&D projects. Similarly, Boone and Raman (2001) find evidence that R&D intensive firms have higher “adverse selection” components of the bid-ask spread (a measure of liquidity), again consistent with these firms having less liquid markets for their firms’ shares. The inference is that, in both cases, market liquidity would improve if there were more disclosure about these firms’ R&D projects.

One question related to the benefits of intangible information is the reliability and comparability of such information. Lambert (1998) raises such issues in the context of his discussion of Ittner and Larcker (1998), which examines voluntary disclosures of intangible assets related to customer loyalty. Ittner and Larcker (1998) examine customer satisfaction (CS) data (the American Customer Satisfaction Index – <http://www.theacsi.org/>), and conduct two separate analyses in addition to the value relevance analysis discussed in section 4 above:

1. The authors analyze customer-level data from a telecommunications company to assess the relation between CS in one year and next year’s revenue and customer retention rates. They document a statistically significant relation, but the regressions have low explanatory power (CS data explain less than 5% of the variation in these metrics).
2. The authors use CS aggregated at the branch level for a bank to assess the relation between CS and one-year-ahead performance measures such as revenues, expenses, margins, return on

sales, etc. The authors characterize their evidence as showing “some” (not strong) evidence of a relation.

Lambert’s (1998) discussion summarizes some of the questions that arise in interpreting the Ittner and Larcker study, and we believe his comments are also instructive more generally. Lambert makes the point that the customer satisfaction numbers are “softer” than accountants are used to dealing with, in part because they are based on survey data. Perhaps more seriously, the three parts of the Ittner-Larcker study all use different customer satisfaction data illustrating the fact that measures for “soft” intangibles like CS are likely to be difficult to standardize – the surveys use different questions, have different scales, employ different methods of aggregating the scores, use different polling methods, etc.

In addition, Lambert makes the following points regarding the implications of the Ittner-Larcker paper for standard-setters (for the purposes of this discussion, he ignores methodological problems):

- If we were to decide to recognize intangible assets such as customer loyalty, the next step is choosing a measurement base, either the cost basis or fair value. There are problems with both of these. With respect to cost, it’s hard to know which transactions relate solely to the acquisition of customer acquisition costs. In fact, part of the cost of all aspects of the firm’s operations affects customer satisfaction. The portion of these costs that have future benefits is very difficult to determine. With respect to fair value, Lambert writes that we are a “long way” from being able to value customer satisfaction reliably, given the many industry and competitive forces that affect the value of this intangible. In addition, as discussed above, valuing CS requires us to separate this asset from the value of brand names or the company’s reputation as a whole, which is difficult.
- The alternative to recognition is to have supplemental disclosures. However, these would have to be standardized in some way to make them comparable and a disclosure standard would have to specify how much flexibility companies would be allowed in deciding how to measure and present customer satisfaction data. The standard would also have to specify the level at which the data should be provided (the firm or its geographic or business segments) and would have to take into account costs, such as proprietary costs.

Related to Lambert’s discussion, the Board’s proposal from last fall advocates a “disclosure” approach but indicates that this could be a first step towards the recognition of intangible assets in financial statements. One rationale for such an approach is that by allowing preparers to experiment, through disclosure, with the measurement of certain intangibles, preparers will have time to resolve measurement issues. However, this suggests that initial footnote disclosures on intangibles will have considerable measurement error, which may lead users to view intangible disclosures as relatively uninformative. Additionally, footnote disclosure of information on intangibles may lead users to view this information as inherently less reliable than if it were to be recognized (e.g., Bernard and Schipper 1994).

Overall, there is relatively little hard evidence that speaks to the costs and benefits of disclosures regarding intangibles. Additionally, there are likely to be important practical problems in terms of deciding on how to summarize, standardize, and aggregate information on intangibles.¹⁸

¹⁸ As we noted last fall, the Conceptual Framework provides only general guidance about disclosure issues, and so it is unclear how the Board will resolve issues related to the disclosure of intangibles information. If these types of decisions cannot be made, it would seem more likely that the resulting disclosure statement will leave these issues up to preparers, which will give them the ability, if they so choose, to make vague and uninformative disclosures.

Moreover, given likely proprietary costs of these disclosures, there is likely to be resistance from the preparer community.

Conclusions

Overall, the evidence from intangibles research suggests that intangibles information is useful to investors, based on its association with equity prices. There is also some evidence that investors under appreciate the benefits associated with current investments in intangibles; whether this underweighting is related to current accounting practices (i.e., expensing) for intangibles is not clear. Second, research suggests that expenditures on intangibles have future benefits, as suggested by the link between current-period expenditures and future earnings. In addition, there is evidence that these benefits are more uncertain (risky) than those associated with expenditures that we normally capitalize. In general, research results lead us to conclude that information on intangibles expenditures is useful to investors, and that there is some empirical support for arguments in favor of at least the capitalization of R&D intangibles.

Nevertheless, given concerns about interpretations of research results, we would encourage the FASB to proceed cautiously down the path of disclosing and recognizing information on intangibles. As indicated, there is not clear evidence on the net benefits of this information. Moreover, given the economically-varied nature of intangibles and the fact that few standards exist to guide the aggregation and summarization of intangibles data, there are questions about how exactly any FASB mandates on disclosure would be implemented.

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