



INTELLECTUAL ASSETS AND VALUE CREATION: IMPLICATIONS FOR CORPORATE REPORTING

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I. INTRODUCTION

1. Companies that make substantial use of intellectual assets have become the hallmark of the modern economy. Their increasing importance for growth and competitiveness nevertheless presents challenges in terms of financial reporting requirements and corporate governance. Since the success of these companies is of crucial importance for the renewal of a country's industrial base, the issues are far from trivial. Despite a long controversy, accounting standards and the associated financial accounts appear to be inherently unsuitable for recognising intellectual assets. As investors can no longer rely on financial statements to have a comprehensive view about a company, they are faced with new problems of evaluation and therefore in the way they make their investment decisions. There are also challenges for companies and especially for the board. The management, measurement and reporting of intellectual assets is also intimately linked with key corporate governance issues such as monitoring of senior management and strategy by the board, reporting and accountability to shareholders, oversight of internal control and risk policy.

2. The basic tenet of this report is that providing the market with sufficient and material non-financial information about intellectual assets improves the exercise of ownership rights and helps discipline management and boards with positive economic consequences. Major issues related to enhanced disclosure are: *(i)* using taxonomies of intellectual assets meaningful to both managers and investors; *(ii)* managing intellectual assets to improve resource allocation decisions and to manage risk; *(iii)* measuring intellectual assets by non-financial metrics to better indicate their contribution to value creation and to fulfilling strategy; *(iv)* reporting of intellectual assets and their value drivers to improve the validity, accuracy, materiality, completeness and objectivity of non-financial information and to foster comparability across organisations, industries and over time.

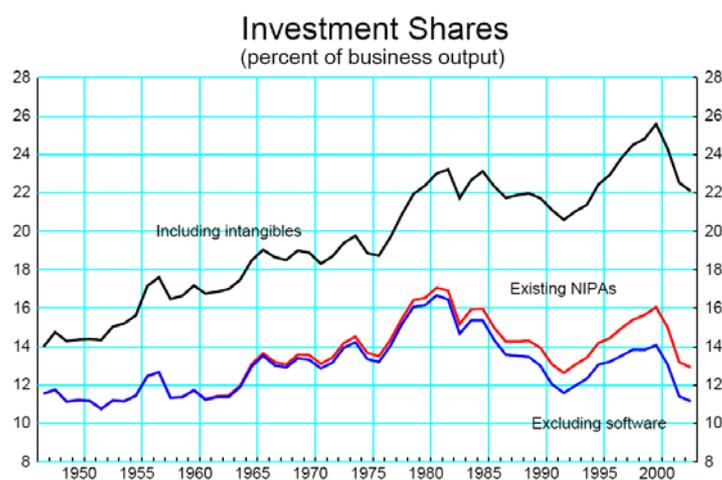
3. The report first outlines the rising importance of intellectual assets and the associated need to properly inform markets. Concern to improve information has led to the development of a number of taxonomies or analytical classifications of such assets which are reviewed in section III. The report notes that there is only a limited opportunity to recognise intellectual assets in the financial accounts and that given the need to also report on what factors might make them valuable, means that they are best dealt with through narrative reporting. Section IV therefore discusses the potential to improve the use of narrative reporting to cover intellectual assets before making a stock-take of the specific guidelines for reporting intellectual assets. The initial experience with their use and the reactions of the financial markets is discussed in section V. The convergence with standards being developed to cover internal control and risk management is covered in section VI. Some non-listed companies have been particularly active in exploiting intellectual assets and the reporting guidelines have often been oriented to such companies. Section VII focuses on non-listed companies that are financed by venture capital and reviews the equivalent of "reporting requirements" for a listed company: the necessity to provide information to investors in order to ensure finance and other investor support. Conclusions are developed in section VIII.

II. NATURE AND SCALE OF THE ISSUE

Intellectual assets are becoming more important

4. Today, the most important factors of production in developed countries are invisible. These intangible assets, also referred to as intellectual assets or intangibles - brand, reputation, trademarks, software, research and development, patents, staff skills, strategy, process quality, supplier and customer relationships, etc.- are delivering a fast-growing contribution to corporate competitiveness. There is a growing realisation that a company's stock of intangible assets is a key contributor to its capacity to secure a sustainable competitive advantage. The impact is also important at the macroeconomic level: a study reports that investments in intangibles would have been about 10% of GDP by the late 1990s, if considered as capital expenditures, roughly the same share as for tangible investment (Corrado, Hulten and Sichel, 2005) (Figure 1).

Figure 1. Shares of Tangible and Intangible Investments in the United States



- Existing NIPAs stands for the share of investment currently included in the National Income and Product Accounts, which comprises investment in durable equipment and structures plus investment in software.
Source: Corrado, Hulten and Sichel (2005)

5. At the same time, traditional accounting has necessarily remained focused on tangible assets. Traditionally, the only intangible assets recognised in financial statements have been intellectual property, such as patents and trademarks where a market value has been established by a transaction, and acquired items such as goodwill. Although accounting standards can probably be developed further to take into account a wider range of intangibles, clear limits are set by the difficulty of establishing monetary values (valuation) that are at the same time consistent across firms, verifiable and that cannot be easily manipulated.¹ As a result, a significant portion of corporate assets go under-reported in the financial accounts. The relative lack of accounting recognition of intangibles coupled with their growing importance in the value creation process means that the financial statements have lost some of their value for shareholders. If other information does not fill the void, there could be misallocation of resources in capital markets.

- Accounting standards covering intellectual assets are IAS 38. For example, IFRS now calls for the capitalisation of some product development costs and amortisation over the market life of the product. Of course, the skills and reputation acquired by such expenses might remain in place after the full amortisation.

6. Some empirical research indicates a possible underestimation of intangible assets by the capital market. One study treated R&D as a capital item that was amortised over time and, after allowing for risk, examined the actual future stock price developments of the most R&D intensive companies. They showed that between 1983 and 2000, the US capital market systematically undervalued R&D intensive companies for a significant period, thereby also raising the cost of capital for such enterprises.² This is not to say that investors did not value this particular intangible but that they were also slow to recognize the full value of investment in R&D and had what proved to be an exaggerated perception of the risk surrounding R&D investments. Companies themselves often lack information about the returns on investments in specific intangible assets and because it is difficult to manage what is not being measured, the assets that are most responsible for creating value in today's economy might not be managed as well as they could be. This could lead to inefficient resource allocation, misdirected investment strategies and, through under-valuation, a higher cost of capital.

But need complementary inputs to create value

7. Intellectual assets by themselves neither create value nor generate growth. They need to be combined with other "factors of production". For example, investment in training only generates value when combined with other factors such as improved business processes and the availability of the right information systems (Lev and Daum, 2004)³. Empirical studies of the biotechnology industry⁴ indicate that the extent to which the technologies held within a firm are related to one another in a coherent whole becomes an increasingly important determinant of market value. While the intellectual assets base (patent stock and scale of the research effort) is indeed important, the way firms combine their technologies is equally valuable for shareholders (Nesta and Saviotti, 2006).

8. There is now significant empirical work to support the view that effective use of intellectual assets and technologies depends on the quality of management. There are many examples of firms that have proved incapable of bringing successful R&D to market and others that have succeeded without much R&D, but rather through the careful use of human capital and the promotion of innovation in their own organisations (Jaruzelski et al., 2005)⁵. Others possess significant intellectual assets but lack commercial success while some might be the leader today but they can lose their competitive advantage very quickly as new entrants drive down profits and introduce new innovations. One study shows that management practices including management of human capital and technology, setting targets and reporting on performance, vary widely both within and between countries and within industries (Bloom et al., 2005)⁶. In general, there are a large number of poorly managed firms that for one reason or another do not exit the market rapidly or adopt best practices, with the well-managed firms excelling in productivity, profitability and sales growth.

2. Lev, B., D. Nissim and J. Thomas (2005), "On the informational usefulness of R&D capitalization and amortization", *Working Paper, Columbia University*. Hall and Oriani (2004) also show that the market value of companies in several countries increases in response to R&D but that there is some discount (the elasticity is less than unity) so that either firms over-invest or investors are cautious in estimating the potential benefits. They also found that corporate governance aspects helped explain the discount in Italy. B. Hall and R. Oriani, "Does the market value R&D investment by firms in France, Germany and Italy", *NBER Working Paper*, 10408, 2004.

3. Lev, B. and J. Daum (2004), "The dominance of intangible assets: consequences for enterprise management and corporate reporting", *Measuring Business Excellence*, Vol. 8.

4. The biotechnology industry includes three main sectors, namely pharmaceutical, chemical, and the agro-food (Nesta and Saviotti, 2006).

5. Jaruzelski, B., K. Dehoff and R. Bordia (2005), "The Booze Allen Hamilton Global Innovation 1000: Money isn't everything", *Strategy and Business*, 41, Winter 2005.

6. Bloom, N., S. Dorgan, J. Dowdy, J. Van Reenen and T. Rippin (2005), "Management Practices Across Firms and Nations", Centre for Economic Performance, London Business School.

III. CLASSIFYING INTELLECTUAL ASSETS

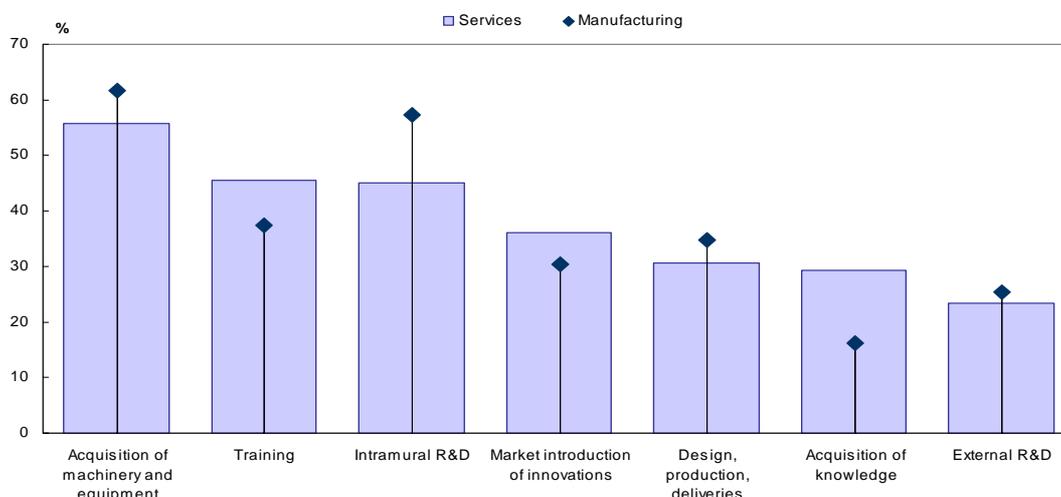
9. There have been a number of attempts to identify the various constituents of intellectual assets (*i.e.* developing a taxonomy). The proliferation of definitions, classifications and measurement techniques in recent years reveals conceptual, methodological and also practical difficulties. Methodological difficulties appear from the very start as even the term "intellectual assets" is not commonly accepted and some countries tend to use the term "intellectual capital" or "intangibles" or even "knowledge capital". There is a widespread tendency to use the terms "intangibles", "intellectual capital" or "intellectual assets" interchangeably. Some will find differences between these terms, but they refer to the same reality: a non-physical asset with a potential stream of future benefits. Intellectual assets will be used in this report to maintain symmetry with the term "physical" or "tangible" assets.

The broad scope of intellectual assets creates confusion with respect to the boundaries

10. There is no globally accepted definition and classification of intellectual assets. Most definitions seem to agree that they have three core characteristics: i) they are sources of probable future economic profits; ii) lack physical substance; and iii) to some extent, they can be, retained and traded by a firm. They generally include at least R&D, patents, and trademarks. The scope of intellectual assets has evolved in recent years from such a narrow focus to a broader concept including human resources and capabilities, organisational competencies (databases, technology, routines and culture) and "relational" capital including organisational designs and processes, and customer and supplier networks. Definitions tend to include more dynamic business attributes such as knowledge-creating capability, rights of access to technology, the ability to use information, operating procedures and processes, management capability to execute strategy, and innovativeness. The expansion in the scope of intellectual assets reflects the current confusion between the intellectual assets themselves such as patents, software, trademarks, and their value drivers such as management capabilities or the ability to execute strategy that generate value from the retention and use of these intellectual assets.

11. A crucial determinant of business innovation and value creation appears to arise from components of intellectual assets other than R&D. According to a survey conducted by the Confederation of British Industry⁷, "government policy is failing to support large swathes of innovation activity because it is focusing its attention almost exclusively on R&D and supporting science and technology research at the expense of other areas of business innovation". An OECD study (2004) on activities that contribute to innovation found that they include a wide range of complementary activities that range from R&D to training, acquisition of knowledge, and expenditures related to launching innovations in the market. Knowledge can be both generated internally and acquired externally such as by purchasing machinery and equipment that embodies technology and that leads to the introduction or implementation of innovations. Training the workforce with the necessary skills required for the development or introduction of innovative products and processes is another type of innovation expenditure, as is investing in market research or advertising in relation to the launching of a new product. Innovation expenditure is usually estimated to be 2 to 4 times as high as R&D expenditure at the firm level and has the characteristics of an asset, albeit one which might depreciate rapidly. (Figure 2).

7. Confederation of British Industry and Qinetiq (2005), *Innovation Survey*

Figure 2. Share of innovative firms engaged in different innovation activities, 2000 (%)¹

1. Figures are merely indicative (simple average of available country shares) .

Source: OECD Science, Technology and Industry Outlook 2004, based on Eurostat, CIS3 survey 2004

12. Although a number of classifications of intellectual assets have been proposed, the categorisation proposed by the European Commission through the Meritum project (guidelines produced by researchers from universities across Europe) appear to be the most commonly used in intellectual capital guidelines (in Australia, Germany, Japan, Switzerland) and in academic papers. Intellectual capital is classified into three categories: human capital, relational capital and structural capital. **Human capital** is defined as the knowledge, skills and know-how that employees “take with them when they leave at night”. Examples are, innovation capacity, creativity, know-how, previous experience, teamwork capacity, employee flexibility, tolerance for ambiguity, motivation, satisfaction, learning capacity, loyalty, formal training, and education. **Relational capital** concerns the resources arising from the external relationships of the firm with customers, suppliers and R&D partners. It comprises that part of human capital and structural capital involved with the company’s relations with such stakeholders. Examples are image, customer loyalty, customer satisfaction, links with suppliers, commercial power and negotiating capacity with financial entities. **Structural capital** refers to the knowledge that stays with the firm “after the staff leaves at night”. It comprises organisational routines, procedures, systems, cultures and databases. Examples are organisational flexibility, a documentation service, the existence of a knowledge centre, the general use of information technologies and organisational learning capacities.

Classification schemes can lack materiality for investors and managers

13. Although such classificatory schemes have been used in developing guidelines and by researchers, they may not be so value-relevant for investors and managers. Few analyst reports labelled “Intangibles” or even “Relational Capital” or “Structural Capital” or “Organisational Capital” have been released. It doesn’t mean that investors do not take into account intellectual assets in their research and in their judgment about investments. Rather, they consider other more summary categories of intellectual assets such as “brand equity”, “reputation”, “management of skills”, “franchise value” or “FDA approvals” on a company or sector basis and according to a specific situation. However, some investors seeking to address intellectual assets more systematically, such as those belonging to the Enhanced Analytics Initiative, are now tending to mix up intellectual assets and socially responsible investment issues and to create some confusion with respect to the boundaries of intellectual assets. This development also reflects the complex constituencies involved.

14. The current diversity in definitions and taxonomies of intellectual assets reflects the diversity of actors (e.g. different types of investors, accounting bodies, academics, science policy specialists, management consultants, companies) and their different interests in addressing the issue of management, measurement and reporting of intellectual assets. Managers recognize that concepts such as company resilience, quality of management including resource allocation decisions and potential risk factors are material, but do not associate them spontaneously with intellectual assets. Adoption and diffusion of some form of intellectual assets reporting will be significantly influenced by sharing of a common language between managers, investors and policy-makers, and this report seeks to aid the development of such an understanding. Considering the wide scope of intellectual assets, their interdependent nature, the confusion between the assets and their value drivers, and the new tendency to integrate intellectual assets into the area of corporate social responsibility reporting, this report has to take a clear position: it seeks to clarify the concepts and issues and to meet the needs of managers and significant investors who would usually conduct their own research or use the services of buy-side analysts. However, it would be premature to propose a new classification in this report.

Table 1. Examples of taxonomies for intellectual assets

OECD Technology Economy Project (1992)	<ul style="list-style-type: none"> • Intangible investments in technology, e.g. R&D, design, development engineering, scanning and search activities, technology acquisition and licensing • Enabling intangible investments, e.g. human resources, organisation and information structures • Intangible investments in markets, e.g. market exploration, market development including brands, market organisation including developing customer information • Investments in software, e.g. computer-controlled manufacturing processes, quality control, testing, storage, handling and services systems such as sales and delivery
International Federation of Accountants (1998)	<ul style="list-style-type: none"> • Human capital, e.g. know-how, education, vocational qualification, work-related knowledge, occupational assessments, psychometric assessments, work-related competencies, entrepreneurial élan, innovativeness, proactive and reactive abilities, changeability • Relational capital, e.g. brands, customers, customer loyalty, company names, backlog orders, distribution channels, business collaborations, licensing agreements, favourable contracts, franchising agreements • Organisational capital which comprises: <ul style="list-style-type: none"> ➤ Intellectual property, e.g. patents, copyrights, design rights, trade secrets, trademarks, service marks ➤ Infrastructure assets, e.g. management philosophy, corporate culture, management processes, information systems, networking systems, financial relations
The Brookings Institution Task Force on Understanding Intangibles (2001)	<ul style="list-style-type: none"> • Assets that can be owned and sold, e.g. intellectual property, contracts, business agreements, licenses and franchise rights, quotas and resource allocations, employment contracts • Assets that can be controlled but not separated out and sold, e.g. business secrets, in-process R&D, business processes • Intangibles that may not be wholly controlled by the firm, e.g. human capital, core competencies, organisational capital, relationship capital
European Commission, MERITUM Project (2002)	<ul style="list-style-type: none"> • Human capital, e.g. innovation capacity, creativity, know-how, previous experience, teamwork capacity, employee flexibility, tolerance for ambiguity, motivation, satisfaction, learning capacity, loyalty, formal training, education • Relational capital, e.g. resources linked to the external relationships of the firm with customers, suppliers and R&D partners. • Structural capital, e.g. knowledge that stays with the firm after the staff leaves
Japan, Ministry of Economy, Trade and Industry, Interim Report by Subcommittee on Management & Intellectual Assets (2005)	<ul style="list-style-type: none"> • Human resources • Organizational assets • Related structural assets

IV. NON-FINANCIAL REPORTING GUIDELINES, RECOMMENDATIONS AND PRACTICES

15. Given the limited scope for recognising intellectual assets in the financial accounts, the purpose of this section is to review the main disclosure standards and practices enabling companies to provide non-financial information about their intellectual assets in a coherent and useful form. Although there is a great diversity in the guidelines and frameworks considered, they can nevertheless be considered under one of two broad categories: narrative statements or non-financial reporting and specific reporting about the intellectual assets. Whereas the former is intended to report all value drivers of organisational performance, the latter focus on a more narrow definition of a company's intellectual assets. Narrative statements can, however, be a suitable framework for companies to present their intellectual assets and to discuss their value creation strategies and can complement more specific reports.

Background for non-financial and forward-looking information in narrative statements

16. Generally speaking, current management and corporate reporting practices are focused primarily on backward-looking information reflecting in part their stewardship orientation. Most financial reporting and performance indicators only provide a picture that shows how effective a company was in the past in utilising its resources. They provide little systematic information about the capacity of the company to generate future revenues. Investors need an overview of all value drivers of the company to better assess the potential of the company and its ability to achieve sustainable results. They can obtain this information through market sources and/or directly through corporate reporting. To assist investors in assessing the strategies adopted and the potential for those strategies to succeed, several guidelines to aid narrative reporting have been issued that promote the disclosure of, *inter alia*, material, qualitative and forward-looking information about the company's value drivers, trends, risks and uncertainties.

17. Narrative reporting to complement and supplement financial statements is not a recent development. Listed companies in, *inter alia*, the US and Canada are used to producing a Management and Discussion Analysis (MD&A) in the front sections of their annual reports. The scope of these reporting requirements is quite broad. Companies should report "through the eyes" of management by providing more narrative and analytical information about their financial statements. This implies, though does not require, that externally reported information should be consistent with internal management reporting. Recurring themes included in these general requirements are: (i) contextual information that enables a more complete understanding of current and prospective financial results and position; (ii) expanded information on both financial and non-financial performance measures; (iii) forward-looking information for assessing prospective performance; (iv) the risks and uncertainties that may affect the company's long-term value; (v) information on key performance indicators (KPI) that companies use in managing their business.

18. A range of frameworks have been proposed in recent years that encourage companies to report developments within the sphere of intellectual assets. The first wave of reporting frameworks evolved around a scorecard format that provides a mechanism for companies to report a greater variety of information about the various components of their intellectual capital. Among them, the most famous are the Skandia Navigator⁸, the

8. Skandia Annual Report (1994), *Visualising Intellectual Capital*

Balanced Scorecard⁹ and the Intangible Assets Monitor¹⁰. The second wave is characterised by the attempt to link intellectual capital more explicitly with innovation and the value creation process through frameworks such as the Value Chain Scoreboard¹¹. The third wave relates to a more narrative-based format for intellectual capital statements and has emerged in Denmark. In 1997, a pilot group of Danish Companies issued Intellectual Capital Reports according to a guideline proposed by the Danish authorities. Taking the lead from the MERITUM and the PRISM projects at the European Union level, other firms have decided to make additional disclosures going beyond listing requirements, especially in Germany and in Spain. A number of leading companies have also reported intellectual capital going beyond their reporting requirements (Ordenez de Pablos, 2005). European companies have pioneered the intellectual capital measurement and reporting field, but the trend has now extended to Japan where guidelines for disclosure of intellectual assets have been issued. However, despite the apparent diffusion of these experiments, specific reporting on intangibles is not widespread and North American firms are less active in this area.

19. The absence of specific reporting guidelines on intellectual assets in North America, especially in the US, does not come from a lack of debate. Interest in the issue of corporate reporting and accounting for intellectual assets has waxed and waned over the past decade. The interest shown by various constituents in the US such as AICPA¹², CFA Institute¹³ and the Brookings Institution¹⁴, culminated with the creation of FASB's Business Reporting Research Project in 1998. The FASB recognised that the US accounting system was inadequate to cope with the growing importance of intellectual assets and partly tackled the issue of the recognition of intangibles with the issuance of two standards (SFAS 141 and 142¹⁵). The project related to reporting of intellectual assets¹⁶, however, has been abandoned and has not been taken up by other parties in the US. Out of the many explanations given to understand the decline of interest in reporting intangibles (bursting of dot.com bubble, wave of accounting scandals, shift of interest to other issues), a recurrent one concerns the perceived absence of a market failure in the US that would justify any additional requirements to disclose non-financial information on intellectual assets let alone the development of guidelines. Indeed, in the US there is currently little active investor pressure since, it is argued, the investor community already considers intellectual assets on a routine basis. Some investors ask and obtain from companies very detailed information and evidently already incorporate it in their valuations.¹⁷ They do not feel that information/indicators promoted by some existing intellectual assets statements (such as the number of patents, the number of employees with a

9. Kaplan, R.S. and D.P. Norton (1992), "The Balanced Scorecard- Measures that drive performance", *Harvard Business Review*, January- February 1992
10. Sveiby, K.E. (1997b), "The intangible assets monitor", *Journal of Human Resource Costing and Accounting*, Vol. 2 No.1, pp.73-97. It has been used by the Swedish company Celemi in its Annual Report
11. Lev, B. (2001), *Intangibles : Management, Measurement and Reporting*, Brookings Institution Press, Washington, D.C.
12. AICPA (American Institute Certified Public Accountants) special Committee on Financial Reporting (1994), *The Jenkins Report (Improving Business Reporting: meeting the information needs of investors and creditors)*, AICPA
13. CFA (Chartered Financial Analyst) Institute (2003), *Financial Reporting in the 1990s and beyond*, CFA Institute
14. Blair M. and Wallman S. (2001), *Unseen Wealth: Reporting of the Brookings Task Force on Intangibles*, Brookings Institution Press, Washington D.C.
15. FASB (Financial and Accounting Standards Board), *Statement of Financial Accounting Standards N° 141: Business Combinations*, June 2001 and *Statement of Financial Accounting Standards N° 142: Goodwill and Other Intangible Assets*, June 2001.
16. FASB, Steering Committee Report (2001), *Improving Business Reporting: Insights into Enhancing Voluntary Disclosure*, Business Reporting Research Report
17. For example, this might even extend to valuing the reputation of the leading scientists, which actually turns out to be a good predictor of success in biotechnology. M. Darby et al, "Stakes and Stars: the effect of intellectual human capital on the level and variability of high tech firms' market values", *NBER Working Paper*, 7201, 1999.

PhD, amount of money spent in training...) would be very useful for future valuations. However, they are interested in having standardised information directly linked to a revenue or income stream. This is quite clear in some industries such as pharmaceuticals where a number of intellectual asset style indicators are widely used.

Table 2. Selected Non Financial Reporting Frameworks and Guidelines

Type	Institution/Country	Initiative	Scope	Application	Year ¹⁸	Reference
Narrative/non-financial reporting (e.g. contextual information on major factors affecting a company's performance)	European Union	Public	All companies except SMEs	Mandatory	2003	Business Review- Modernisation Directive (4 th and 7 th Directives)
	Australia	Public	Listed companies	Mandatory	2003	ASX Listing Rule 4.10.17, Australian Stock Exchange
	Canada	Public	Listed companies	Mandatory	2003	Management Discussion and Analysis under NI 51-102, Continuous Disclosure Obligations, Securities Administrator
	Germany	Public	All companies	Mandatory	2004	GAS 15 Management Reporting, DRSC
	United Kingdom	Public	Quoted companies	Voluntary	2005	Operating and Financial Review, Department of Trade and Industry
	United States	Public	Listed companies	Mandatory	2003	Management Discussion and Analysis, Securities and Exchange Commission
	European Union	Public	All companies	Voluntary	2002	Guidelines for Managing and Reporting on Intangibles, MERTUM Project
	European Union	Public	SME	Voluntary	2006	RICARDIS report, DG Research
	Australia	Public	All companies	Voluntary	2002	Australian Guiding Principles on Extended Performance Management, Society for Knowledge Economics
	Austria	Public	Public universities	Mandatory	2002	Austrian Universities Act, Federal Ministry of Education, Science and Culture
Specific reporting about intellectual assets (e.g. stand-alone reports on intellectual assets)	Denmark	Public	All companies	Voluntary	2003	Intellectual Capital Statements- The new guideline, Ministry of Science, Technology and Innovation
	Germany	Public	SME	Voluntary	2004	Intellectual Capital Statement- Made in Germany, Federal Ministry of Economics and Labour
	Japan	Public	All companies	Voluntary	2005	Guidelines for Disclosure of Intellectual Assets Based Management, Ministry of Economy, Trade and Industry

18. Year of the latest version
@ OECD 2006

Objectives, scope and targets of existing non-financial reporting frameworks

20. A comparative analysis of the non-financial reporting frameworks proposed in Table 2 points to several differences in their scope, target companies, users and purposes. On the one hand, the general non-financial reporting frameworks concerning listed companies are usually mandatory and shareholder oriented and are thus considered as a reporting tool for the company. As a consequence, the main benefits expected relate to improved capital market efficiency, a lower cost of capital, a lower bid/ask spread and reduced stock price volatility. On the other hand, the specific reporting guidelines on intellectual assets cover all organisations, with a special focus on small innovative companies, they intend to promote a voluntary application of the guidelines, and are not necessarily shareholder focused but rather are mainly considered as a management tool.

21. In comparison with the general non-financial reporting frameworks, the non-financial information assembled by the intellectual capital reports aims to: (i) make intellectual assets and their value drivers more visible; (ii) ensure stakeholders that the specific risks arising from the intellectual assets are properly managed; and (iii) report intellectual asset-specific key performance indicators that portray the performance of the company in terms of how it has managed its intellectual assets. Some companies use this narrative reporting to discuss their intellectual assets and corporate strategy with respect to innovation.

22. Table 2 points to the absence of an institutional framework to guide developments. Efforts are underway to create a comprehensive framework for non-financial reporting, but no consensus framework exists as of now. The lack of convergence of the non-financial reporting frameworks proposed sets a clear limit to the dissemination of good reporting practices by companies and to the comparability of the reports. Attempts to provide a common framework are being made by the Enhanced Business Reporting Consortium (EBRC), a project of the AICPA's Special Committee on Enhanced Business Reporting launched in 2004. The EBRC released in October 2005 a disclosure framework draft that intends to promote greater transparency on corporate strategy and performance. IASB has also launched an initiative about whether it should promote an "MD&A type" reporting framework called Management Commentary (MC). The discussion paper on MC released in October 2005 with a consultation period ending in April 2006 proposes the development of a principle-based standard with non-mandatory guidance to provide forward-looking and contextual information for investors. Another new player is the International Corporate Governance Network (ICGN) that set up in 2004 a "non-financial business reporting committee" to review best practices and issue recommendations.

23. These initiatives may be taken forward by European countries to strengthen their management reporting requirements to comply with EU Company Law. Indeed, since April 2005, as a result of the 4th and 7th Company Law Directives, EU companies (except small companies) have to expand their directors' reports to include a Business Review. Many major UK companies are already reporting beyond EU requirements by publishing an Operating and Financial Review (OFR) on a voluntary basis. Although the statutory requirement on quoted companies to publish OFRs has been removed, they are expected to keep on publishing them considering the benefits they have already experienced. Other OECD countries have also expressed an interest in using EBRC and MC frameworks to update their management reports to encourage a discussion about the principal risks and uncertainties facing companies and to provide a balanced and comprehensive review of performance and development within the year, supported by financial and non-financial KPIs.

The effectiveness of narrative reports depends on markets and segments

24. Narrative reports have not always lived up to expectation, in part because board members and managements have sometimes sought to minimise potential litigation risk by reducing the information content and by avoiding a discussion of future risks, both positive and negative. Deloitte's 2005 survey¹⁹ on UK companies reveals that discussion about the risks and policy for managing risks does not address all risks faced by the business but tends to focus only on foreign exchange and interest rate ones. Companies often also point to other disincentives such as the need to protect commercial confidentiality, but research indicates that competitors are usually well informed by participants in the product market.

25. With respect to competitiveness and understanding value drivers, that have not always been the primary objectives, the main challenges faced by these non-financial reporting frameworks are : (i) to assist companies in the process of producing and disclosing timely, relevant and comparable reports that allow providers of capital to make more informed estimates of the future benefits and risks associated with their investment opportunities; (ii) not to overlap with existing voluntary reporting and provide consistency with all existing reports; (iii) not to overload information disclosure and to ensure the materiality of information released; and (iv) not to increase preparation costs for companies listed in multiple jurisdictions

26. More listed companies in OECD countries are expected to enhance their disclosure about the key risks facing the company and on how they are managed as a result of the recent release of disclosure frameworks such as EBRC, MC and the EU Company Law directives. In the UK, many listed companies have produced narrative statements in 2005 to comply with the anticipated mandatory requirement to produce an OFR and it seems unlikely that companies' interest will fade away completely after the decision to abolish the legal requirement. These companies are now expected to continue complying with non-mandatory OFR guideline as an opportunity to improve dialogue with investors.

27. Enhanced disclosure of non-financial and forward-looking information on the company's value drivers and main risks and uncertainties is expected to be taken forward in two directions. First, to address investors' concern for comparability within industries and to increase the interest in narrative statements, current initiatives consist in moving toward sectoral disclosure frameworks. Indeed, the EBRC intends to supplement its current disclosure framework with industry frameworks. Out of the five selected industries for this modified framework (pharmaceutical, oil and gas, telecom, banking, information technology), the EBRC modified framework will be first tested for the pharmaceutical industry through a collaboration with the Pharmafutures project. Further collaboration with the XBRL community²⁰ should lead to a specific XBRL taxonomy for the pharmaceutical industry with a tagging of both narrative and KPIs. Industry frameworks will comprise a few metrics used across the entire industry. As value drivers differ according to the industry, the average number of KPI will also differ. For example, there are around 15 to 20 relevant metrics for the oil and gas sector according to a PWC study.

19. Deloitte (2005), *Hold the front pages- Surveying OFRs and narrative reporting in annual reports*

20. XBRL stands for eXtensible Business Reporting Language. XBRL is a language for the electronic communication of business and financial data. It consists in tagging each individual item of data instead of treating information as a block of text. Once data is gathered under XBRL tags, information can be shared across geographical and legal jurisdictions and without technical or linguistic barriers. XBRL intends to become the standard way of recording, storing and transmitting business financial and non-financial information.

28. Second, current initiatives tend to encourage smaller listed companies to improve their narrative statements in order to offset the disadvantage of reduced analyst coverage and the resulting higher cost of capital. In the US, the SEC Advisory Committee for Smaller Companies is concerned by the decline in analyst coverage in general and for the smaller companies in particular as economic and regulatory pressures have led to dramatically reduced research budgets. A recent study on the effects of Regulation FD finds that when smaller companies lost analyst coverage after the regulation was enacted, their cost of capital increased significantly (Gomes, *et al.*, 2004). A lack of research coverage impacts company valuation, liquidity and ultimately the growth of the public company. Less than half of the small-caps receive coverage by even a single analyst and analyst coverage for the microcap universe is virtually non-existent: in June 2005, 1200 of the 3,200 NASDAQ-listed companies as well as 35% of all public companies received no analyst coverage at all. According to the SEC Office of Economic Analysis, 52% of companies with a market capitalization between \$125 million and \$750 million and 83% of companies with a market capitalization less than \$125 million had no analyst coverage. As multi-analyst coverage reduces risk premiums and enhances company's valuation (Zuckermann, 2000), policies that promote the dissemination of research on small caps have been advocated. However, firms can still improve the situation through their own actions.

29. The benefits of increased transparency for small companies with a low coverage by analysts is evidenced by an experiment conducted jointly by PWC and the investment management house Schrodgers on the Danish company Coloplast. The PWC experiment consisted in presenting the 2001/2002 full corporate reports and accounts of Coloplast (identified in the Trend Report as a leader in non-financial reporting) to some analysts, and a financially compliant document to others, with the latter excluding any supporting metrics on the relation between operational performance and strategic objectives that the full report by the company included. The result of the experiment was that those analysts with the more complete picture of corporate performance were more confident in their forecasts and were much more likely to issue a "buy" recommendation, even though they actually valued the company lower than the other analysts.

Reporting frameworks on intellectual assets have been adopted by some non-listed companies

30. Danish companies have pioneered IA reporting, with pilot projects launched in 1997, and German companies are now moving in the same direction. The initial pilot project with 14 companies in 2004 has spread to cover 70 German companies as of June 2006. German and Danish experiences reveal a great diversity among SMEs producing IA reports in size, sectors and life cycle. In Denmark, some companies use the guideline literally but many only follow the ideas and develop them individually. As one size does not fit all, the German Federal Ministry of Economics and Labour produced three different guidelines according to the size of the company (9 to 50 employees; 50 to 2000 employees and over 2000 employees). Japanese companies are also moving in this direction but considering that the Japanese guidelines were only released in October 2005, only a few companies have so far published IA reports. More Japanese companies (around 30) have published Intellectual Property (IP) reports as a result of the 2004 Guideline for Disclosure of Intellectual Property Information but these reports are seen as being very technical as they focus on IP and have mainly been released by major listed companies.

31. The EU is seeking to encourage small European companies to disclose more information about their intellectual assets with the RICARDIS report released in June 2006. This report seeks to encourage policy initiatives by European countries to foster the diffusion and standardisation of IA reporting guidelines for research-intensive SMEs. By targeting research intensive SMEs, the RICARDIS report is aiming to boost financing for, and investment in, R&D by these companies and thereby to increase research investment in Europe. Adoption of IA reporting should, it is hoped, contribute to mitigating the difficulties encountered by research-intensive SMEs to find financing for their research and innovation projects. Dissemination of the guidelines is a key concern for the authorities, but the early success of the German scheme with voluntary application of the guideline, indicates that they can diffuse when there are clear benefits for companies.

32. Although IA reporting guidelines are potentially applicable to all companies, current experience reveals that most companies that have reported their intellectual assets in this form are non-listed SMEs. Only one German listed company, out of the 70 companies that have already issued reports, and only two Japanese listed companies (Allabout Inc. and Dataplace Co.) have published an IA report. Even if more listed companies in Japan are expected to turn their IP reports into Intellectual Asset-Based Management Reports, the most responsive group till now is SMEs. Major benefits reported by non-listed companies that have produced intellectual assets reports relate to internal management and communication with stakeholders. In Germany, Denmark and Japan, intellectual assets reports appear to have been used for strategic management purposes and to attract resources such as employees and customers. The experience of the Danish and German firms that have participated in the pilot projects shows that the main benefits of intellectual capital reports for them were improved customer acquisition and retention, enhanced employee motivation and an awareness of organisational strategy and the objectives of the company, improved employee recruitment and retention, and increased competitiveness of the company coming from a better identification of the value creation drivers, an enhanced efficiency of resource allocation and better project management. Intellectual assets reports may also serve to enhance the reputation of a company as experienced by the Japanese bio-tech company, Neochemir Inc.

33. As intellectual assets reporting guidelines have been mainly adopted by non-listed SMEs, financial market considerations have not played a major role but financing conditions nevertheless have been important. Benefits have been reported by some companies in their relationships with creditors. In Germany, one company experienced a decrease in its interest rate which allowed the company to save several hundred thousand euros as well as an upgrade of its rating to “Investment Grade Rating”. In Japan, another company received a higher evaluation for its borrowing by a regional bank after having explained the substance of its IT security-related business in its IABM report in March 2006. Furthermore, Japanese companies asking for funding for R&D projects to NEDO (the R&D funding agency) are now required to present IABM-based reports. These are admittedly a tiny sample from which to draw conclusions but may nevertheless be indicative of future developments.

34. There is evidence that IA reporting can also benefit small listed companies. However, investors report concerns about the materiality of information and KPI disclosed by current intellectual assets reports. The materiality of intellectual assets reports is affected by the relevance of KPI disclosed. Most of them are not informative about expected future revenue streams, strengths and weaknesses and the strategy adopted. Investors are looking for KPIs used by directors and executive management to measure the delivery of their strategies and to manage their business effectively. Usefulness would be enhanced by the release of a few KPIs that may vary by industry. The reliability of KPIs has to be ensured through suitable controls surrounding the collection of data used in KPIs, usually as part of the normal internal control procedures. Investors also report concerns about the comparability of the reports produced. First, there is not a critical mass of companies producing intellectual assets reports. Second, the preparation and the publication is not done on a regular basis as it is an expensive and time-consuming process and does not have to be updated regularly. Finally, comparability among organizations is reduced since companies tend to focus on individualized value drivers of intellectual assets.

V. ENHANCED DISCLOSURE AND FINANCIAL MARKETS

35. As noted above, official guidelines covering narrative non-financial reporting about intellectual assets and value creation strategies have tended to focus on small companies, in part with the intention to improve management. At the same time, this report has also noted that the interests of investors have sometimes not been fully taken into consideration, especially with the more explicit intellectual asset reporting guidelines. However, it is incorrect to view investors and financial markets as passive. This section therefore reviews the explicit actions of investors to improve reporting as well as how their less documented actions (including their own analysis and data collection) have had an impact on financial market behaviour.

Investor initiatives to stimulate corporate reporting on intellectual assets

36. The pressure from investors for improved disclosure is at an early stage in many markets but could become a driving force in pushing companies to reconsider calls for an increased disclosure of forward-looking information about their intellectual assets and value creation strategies. Initiatives from investor groups have come first from Europe. With the Enhanced Analytics Initiative (EAI), established in 2004, major European institutional investors decided to commit 5% of their brokerage to stimulate innovative research on how to incorporate extra-financial and forward-looking information into their analysis for long-term investment decisions. The EAI's influence is spreading with North-American institutional investors joining EAI in 2006: as of June 2006, 20 funds from 8 markets are EAI members and total assets under management now amount to some \$1trillion. The EAI's increasing influence is also attested to by the growing number of analysts incorporating extra-financial issues into their research: compared to the June 2005 evaluation, the number of reports qualifying as of December 2005 has increased from 92 to 145 and the number of analysts represented has increased from 23 to 31. The EAI conducts a six monthly evaluation of research that EAI members have found useful, using criteria established by EAI's members. There are generally 5 to 10 winners and the 5% commission fund is allocated to this group. A major result of this initiative is a more systematic integration of extra-financial issues in the mainstream research by analysts²¹.

37. EAI defines extra-financial factors as those which are likely to have at least a long-term effect on business results but which lie outside the customary span of variables that are considered in investment decisions. Therefore, the list of extra-financial factors is constantly updated and some of them, such as some corporate governance factors (most recently, executive remuneration), are starting to become part of mainstream analysis. Fuelled by mid-cap and small-cap investments and by higher oil prices, research on clean technologies has also increased to the point that it can now almost be considered mainstream by EAI members. The main issues covered by analysts to date are intellectual capital management, executive remuneration, human rights, occupational health and safety and human capital practices, innovation, research and development, customer satisfaction, climate change, corporate governance, consumer and public health, reputation risk, and the environmental and social impacts of corporate activity. However, issues related to human and intellectual capital are poorly covered in comparison with environmental issues (energy and utilities

21. For example, UBS analysts are now considering a wider range of issues such as: competition issues; environmental issues; human rights; product responsibility; bribery and corruption; and respect for privacy.

are the most closely covered sectors)²² and are under-represented relative to the importance of these issues to the buy-side. Considering the growing importance of social responsibility issues in EAI's research, some investors believe that the EAI contributes to increasing confusion about the current taxonomy of intellectual assets and that it could contribute to the lack of materiality of research focused on IA.

38. Other initiatives come from the financial analysts' community with guidelines for additional information on intellectual assets and on value creation issued by the Italian Financial Analysts Society (AIAF) and from the Norwegian Society of Financial Analysts (NFF). The AIAF issued a reporting framework that identifies five communication dimensions for intellectual assets (the strategy, the clients and the market, human resources, processes and innovation, and the organisation) and proposed an intangibles disclosure index with a long list of 80 indicators. Both guidelines aim to increase incentives for companies to release additional information needed by investors. Analysts need to make comparisons with competitors and try to rank key intangibles relative to competitors. Therefore, their main questions to companies concern external threats, exposure, risk, corporate responsiveness and impact on value. They are seeking a linkage between key intellectual assets, company performance and share price. The common features of information needed by investors²³ are (i) forward-looking information (such as product pipeline); (ii) information directly linked to a revenue stream; (iii) standardised information; and (iv) information that is hard to manipulate legally.

39. As indicators proposed in the existing reporting frameworks on intellectual assets have not proved to be useful to investors, the release of material KPIs linked to revenue stream should encourage investors to incorporate research on intellectual assets in their mainstream research and to release intellectual assets-related reports on a more systematic basis. IR Japan's evaluation of the usefulness to investors of the KPIs proposed to accompany METI's Guidelines reveal that only 20% of them are considered as useful and that they are the ones that are more closely linked to revenue or cost streams²⁴. Analysts' reports from EAI members also reveal the importance of sector indicators. For example, the Oddo Securities report underlines the key impact of human resources on IT services²⁵. Materiality of KPIs is enhanced by reference to sectoral benchmarks: for example, the turnover rate in IT firms (around 10%) differs from that in Machinery (5%). The EBRC initiative to develop sectoral frameworks to enhance comparability and increase investors' interest in IA reports will probably be carefully scrutinized by the major actors.

22. It should be noted though that many reports covering climate change and the environment, were in fact oriented to analysing the implications of a new "cap and trade" system for carbon dioxide emissions in the EU.

23. Lev, B.(2005), OECD Conference on Intellectual Assets and Innovation: Value Creation in the Knowledge Economy, Ferrara, October 2005

24. *2005 Survey Questionnaire about Intellectual Assets Index and Corporate Value*, IR Japan. According to the survey, the most important indicators relate to change of sales per customer, operating income to sales ratio of core business, core business operating income as a percentage of total operating income, selling power with customers, core business R&D expense as a percentage of total R&D expense, and quantum of damages paid in lawsuits. The less important ones relate to mid-age recruiting as percentage of total employees, business relationship with suppliers, education expense per employee, environmental investment, commendation through CSR activities and rank of corporate image.

25. Desmartin J.P. and B. Prunas (2005), *IT services: human resources: crucial for growth and profit margins*, Oddo Securities, September 2005.

Markets incorporate many sources of information, but there might be inefficiencies

40. Even when not formally disclosed, there is evidence that markets take into account other features of a company including the expected value of new innovations, R&D initiatives, technological breakthroughs and the quality of management. Capital markets use other channels of information. For example, market valuations often reflect information provided by analysts and specialised sector publications (Darby *et al.*, 1999), while large investors discuss directly with management the innovation strategy and intellectual asset base of the company. As shown by Holland (2004)²⁶ for UK fund managers, analysts' valuation of knowledge-intensive companies is constructed from many fragmented data sources (the mosaic approach) including regular contacts with the management. Nevertheless, investors obtaining information about intellectual assets and business strategies by such means inevitably incur costs, and this delays the dissemination of their assessments in the financial markets as they will seek an economic return on their private knowledge (Holland, 2002)²⁷. Passive fund managers do not have a business case for worrying about corporate disclosure, but active fund managers believe that they can benefit from imperfect disclosure and market inefficiency²⁸.

41. Financial markets do reward companies for increased disclosure, especially for small listed companies. The link between corporate transparency and stock price volatility is stronger for smaller companies (Barnett, 2003)²⁹. The importance of presenting good quality information increases greatly as the level of analyst coverage declines. His findings suggest that companies can mitigate the problem of poor analyst coverage by taking a proactive stance in their corporate reporting. The rewards are important: for the companies that have below median analyst coverage, a 10% increase in the overall disclosure score resulted in a 1.5% reduction in stock price volatility, a result which is economically significant in determining their cost of capital.

42. Improving analyst coverage is a key concern for a number of stock exchanges, including Japan where buy-side analysts cover only 25% of listed companies. Most companies listed on JASDAQ suffer from a low coverage by analysts: except for a selected index of 120 companies (known as Jstock), where there is an 80% coverage on average, the coverage rate is under 50% for the remaining 850 companies. JASDAQ is concerned by under-valuation of small innovative companies due to limited information disclosure to investors. Managers need to adopt a more pro-active stance to encourage analysts coverage by explaining how business processes function and how value is created (Das *et al.*, 2006). JASDAQ has now launched an initiative with a sample of 100 companies to measure and disclose their intellectual assets. They have offered a quick self-assessment tool based on a questionnaire comprising 120 questions and around eight categories (customer, brand, network, IPR, business processes, organisational culture, management and employees) which assesses three dimensions covering the potential of the company (its stocks of IA), their utilization (flow) and their management. JASDAQ expects to improve dissemination of best practices through this experiment.

43. Intense market pressures are already encouraging more companies to improve their reporting practices but companies differ widely in this respect. Some companies are already coping with the non-

26. Holland, J. (2004b), "Fund management, Corporate performance and Intellectual Capital", P467-474, *Proceedings of the 4th International Conference on "Performance Measurement and Management*, Edinburgh

27. Holland, J. (2002), "A dynamic model of fund manager corporate governance", *CIMA Research Report*

28. Market commentators suggest that UK active fund managers have contributed to the withdrawal of the mandatory UK OFR.

29. Barnett B. (2003), "Corporate Disclosure Practices and Stock Price Performance", London Business School.. Barnett uses the ValueReporter communication score provided by PWC on a sample of 131 companies across a range of 7 industries.

financial reporting of intellectual assets, but on an unsystematic basis and with great discrepancies between companies, sector and countries as evidenced by PriceWaterhouseCoopers (PWC) in its annual Trends report³⁰. The hypothesis is that additional public disclosure would enhance capital market efficiency. Empirical studies provide evidence that stock market valuations are indeed influenced by the extent and type of information on intellectual assets that is publicly disclosed:

- A study of the pharmaceutical industry showed that the average stock price reaction to US Food and Drug Administration (FDA) approvals was 0.51 % in the absence of further information. The returns rose to 1.13 % when the announcement was accompanied by qualitative information, and quadrupled to 2 % when quantitative information was also provided (Lev, 2002).
- The stock market value of listed firms has been found to respond positively to announced R&D expenditures. A unit increase in R&D leads to an increase in market valuation of just slightly less, and the market reaction is greater than for tangible investment (Hall and Oriani, 2004; Ballardini *et al.*, 2005).³¹
- With respect to more general disclosure, one study used as a benchmark the PricewaterhouseCoopers system of value added reporting, which includes disclosure about a wide range of strategic issues and value creation going well beyond mandatory standards. Those companies with better general reporting in line with this PricewaterhouseCoopers benchmark enjoyed a lower cost of capital than others whose reporting went no further than required by existing standards of disclosure (Barnett, 2003).

30. PriceWaterhouseCoopers (2005), *Trends 2005: Good practices in corporate reporting*. Since 1999, PWC identifies the companies throughout the world that provide the best narrative information. The selection shows a great diversity of industries and countries.

31. F. Ballardini et al, "Do stock markets value innovation: A meta analysis", SSRN, 2005

VI. RISK MANAGEMENT CAPABILITIES AND INTERNAL CONTROL ISSUES

44. IA reporting frameworks aim to report how an organisation is seeking to create value so that it is understandable that the major benefits of intellectual assets reports have been found to be improved management of intellectual assets, enhanced resource allocation decisions at company level and better risk management. Intellectual assets-intensive companies face heightened risks as innovation cycles are variable and incur substantial investments. These risks must be identified and assessed, then managed and mitigated by the implementation of a strong internal control system. Some feel that intellectual assets reporting frameworks should evolve in this direction.

45. Although most existing guidelines focus on reporting issues, investors and managers are increasingly oriented to internal control and risk management issues. When selecting companies, some investors differentiate them on the basis of: (i) the risk management capabilities which are assessed by scrutinising the contingency match of the managerial and board qualities to the changes in forecast macroeconomic and competitive conditions; (ii) reputation with key stakeholders and brand strength; and (iii) business development strategy and innovation. Moreover, they expect externally reported information to be consistent with internal management reporting in order to improve their decision-making process. By requesting information used by managers, major investors are seeking to reduce the gap between traditional financial reporting - as required by law-, narrative reporting - information also used by investors to value shares, and management reporting - information used by managers to routinely manage the business.

46. Management is not always able to deliver the information on the company's value drivers needed by investors and boards. According to a survey of 250 executives and directors conducted by Deloitte³², "while the overwhelming majority of board members and senior executives said they need incisive information on their companies' key non-financial drivers of success, they often find such data lacking. When non-financial information is available, it is of mediocre or poor value". To adequately monitor the strategy of the company, directors stated in one survey that they would need more non-financial information on how well the company is satisfying customers, delivering high quality products and services, operating with efficient processes, and developing new products and services. If more than 90% of managers confirm that extra-financial factors are either critical or important drivers of success, 40% of them rate themselves as being average at measuring and monitoring these factors, with 23% describing their ability to do this as being only fair or poor. In a parallel study, McKinsey & Co found that more than 50% of directors admitted to having a limited sense of their company's prospects over the next 5-10 years and only 4% said they fully understood their company's long-term prospects. Until the internal information gap is addressed, management will not be able to provide quality extra-financial reports to their investors, even if they wanted to.

47. In spite of the increasing demands for companies to monitor their internal control systems (e.g. United Kingdom, France), there appears to be a great difference between actual and good practice. Reporting frameworks will need to address the issues of internal control and risk management and encourage companies to set up internal information systems in order to provide managers and boards with the quantitative measures they need for efficient resource allocation. Increasing the efficiency of resource

32. Deloitte and EIU (2004), *In the Dark : What Boards and Executives Don't know about the health of their businesses*, available at www.deloitte.com

allocation is a major challenge as research has shown that, for example, an increase in R&D expenditures is not necessarily linked with more and successful innovation. Difficulties arise from the interrelated nature of intellectual assets: intellectual assets are not always separately identifiable but tend to be complementary and can overlap significantly. Knowing more precisely which combination of intellectual assets favours innovation and value creation contributes to improved allocation of scarce resource and strategy formulation, and hence increases a company's competitiveness and growth. By managing and reporting their intellectual assets, the experience seems to be that managers obtain new insights into the value and performance of the organisation's knowledge intensive resources. The increasing emphasis on risk management and internal control taken by current approaches to corporate governance is thus moving in the same direction as moves to improve the management and disclosure of intellectual assets.³³

48. The Turnbull report and the COSO framework have been among the first to encourage companies to identify and evaluate their major risks and report on a company manages risk. They describe a wide range of risks facing a company which are not only financial risks but strategic, operational, compliance and environmental risks. Some countries have issued tighter guidelines on the way in which risk is identified, assessed, managed, monitored and publicly reported. These frameworks could be further developed to address the specific risks faced by intellectual assets-intensive companies. Empirical evidence suggests, for example, that these companies have specific operating risks and that the management of intellectual assets relies on specific value-drivers (Bose and Oh, 2004). Specific operational risks include marketing risks, quality of R&D, manufacturing risk and competitive risk. Bose and Oh (2004) have identified the following value-drivers as having strategic management implications for intellectual assets-intensive sectors such as biotechnology, information technology, and energy and environment: profitability of investment in intellectual assets, uniqueness of innovation, reputation of research team and firm, growth prospects, quality of management, and risk.

Box 1. Examples of frameworks regarding internal control

1) The Turnbull Guidance

The Turnbull guidance, first published in 1999 and revised in 2005, is incorporated in the UK Combined Code on Corporate Governance.

According to this principles-based guidance, directors of companies listed on the London Stock Exchange have to conduct a review of the effectiveness of the group's system of internal control, at least annually, and have to report to shareholders that they have done so. The review should cover all material controls, including financial, operational, and compliance controls and risk management systems. The purpose of internal control is to help manage and control risk appropriately.

2) COSO framework

The Committee of Sponsoring Organizations of the Treadway Commission in 1992 issued the Internal Control-Integrated Framework to help businesses and other entities assess and enhance their internal control systems. The COSO framework outlines 26 principles associated with the five key components of internal control: (1) control environment; (2) risk assessment; (3) control activities; (4) information and communications; and (5) monitoring. This framework has been influential and is widely recognized by executives, board members, regulators, standard-setters and professional organizations as a comprehensive framework for internal control.

33. For a summary of experience in one jurisdiction see *Review of the Turnbull Guidance on Internal Control*, Consultation Paper, DTI, London, 2005.

49. As the innovation cycle gets longer in some sectors such as in pharmaceuticals (and shorter in others), many diverse external risks may arise which, especially when occurring at the later stages of an innovation, have a major impact on value for the company concerned. Operational and competitive risks, usually seen as the most important ones, can take several forms: one competitor might launch the very innovation its competitor is holding back, or an unexpected competitor might enter a market. For example, Apotex launched in 2006 a generic version of the blood-thinner Plavix, Bristol-Myers Squibb's biggest selling drug. As a result of this competition, analysts have predicted that Bristol's profit will tumble by as much as 31% in 2006 which called into question the wisdom of granting a license to the competitor in the first place³⁴. The competition between Sony and Toshiba to win the new DVD format offers another instructive example of how management of an innovation can become more important than the innovation itself. Both companies have developed innovative technologies (Blue-ray for Sony and HD-DVD for Toshiba) that are commercially viable but the battle will mainly be won on the marketing aspects such as the capacity to build strategic alliances with electronic manufacturers (other aspects will obviously have an impact such as the final price of the product and unforeseen manufacturing problems).

50. Intellectual assets reporting guidelines in Denmark, Germany and Japan have been mainly designed as a management tool for small innovative companies to enhance their decision-making process, to provide assistance in resource allocation decisions and to improve their risk management practices. With respect to the management side of the reporting guidelines on intellectual assets, there appears to be little feeling in the US that small innovative companies need to be encouraged to rethink their management of intellectual assets. One reason for this might be these companies can rely on an active and efficient venture capital and private equity industry to provide them with creative and diverse ways of financing in their early stages of development as well as with strong managerial inputs. On a macro-economic level, the venture capital industry contributes significantly to innovation³⁵ and R&D, especially in the information technology and biotechnology sectors³⁶, with small venture firms acquiring intellectual assets discarded by big companies as being non-core business activities³⁷. While this explanation might be valid for such special high tech firms, evidence cited by Bloom et al (2005 op cit) shows that industry in the US is also characterised by a long tail of poorly performing companies. However, they also seem to exit an industry more rapidly than in other countries where they often quickly become a policy concern.

34. "Bristol-Myers Squibb's board pushes out CEO Peter R. Dolan", *Red Herring*, 12 September 2006, available at www.redherring.com.

35. Kortum S. and J. Lerner (1998), "Does Venture Capital Spur Innovation", *NBER Working Paper*, N°6846. The paper argues that the amount of venture capital activity in an industry significantly increases its rate of patenting.

36. Global Insight (2004), *Venture Impacts 2004- Venture capital benefits to the US economy*

37. "IBM opens patents to VCs", *Red Herring*, 13 December 2005, available at www.redherring.com/

VII. REPORTING ABOUT INTELLECTUAL ASSETS TO VENTURE CAPITAL

51. Start-ups and small innovative companies, both typically highly intellectual assets-intensive, need creative and diverse ways of financing, and this incurs reporting obligations. Venture capital (VC) addresses the funding needs of entrepreneurial companies in a number of companies that generally do not have the size, assets, or operating histories necessary to obtain capital from more traditional sources, such as public markets and banks. VC can be defined as equity or equity-linked investments in young, privately-held companies, where the investor is a financial intermediary. Alongside the traditional cash-based VC, corporate venture capital (CVC) involves minority equity investments in small, young, independent entrepreneurial ventures by established firms. The typical distinction between corporate venturing and other types of venture investment vehicles is that it is usually performed with corporate strategic objectives in mind rather than only immediate financial objectives. CVC programs are instrumental in “harvesting” innovations from entrepreneurial ventures and thus are an important part of a firm’s innovation strategy (Dushnitsky and Lenox, 2005).

52. VC is distinct from other types of investors and forms of financial intermediation primarily through the governance and value added services that the investor provides to the company beyond their financial support. Considering the importance of the managerial inputs provided by venture capitalists to foster growth and innovation of these companies, this part of the report will focus on the informational requirements set by venture capitalists (i.e. reporting commitments of the company) that allow them to participate in the value creation process of non-listed companies. The enhanced role of these investors in non-listed companies involves a different structure of corporate governance and reporting arrangements to ensure greater access to proprietary information about the company, including its trade secrets, that is usually solved through private contracting. After documenting the economic and social impact as well as the impact on innovation of the venture capital industry, this section will review the various cash-flow and control rights that allow active investors to provide a wide range of managerial inputs.

53. Firms with a high share of intangibles and in high-tech sectors are more likely to be financed by a VC because they are more difficult for external investors to evaluate and they also look for extra-financial input such as advice from VC. VC reduces asymmetric information problems which are higher for small innovative firms as well as for firms whose assets are difficult to evaluate, such as those whose main asset is a new product yet to be launched on the market or those with a large share of intangible assets in their “balance sheet”. As is evident from Box 2, the effects of VC on innovation, R&D, economic growth and employment is highly significant.

Box 2. The contribution of venture capital- backed companies to growth and innovation

Economic and employment impact of the venture capital industry

VC-backed companies provide a substantial impetus to the economic performance and global competitiveness in the US and in Europe, where VC activities have spread. A BVCA study of the economic impact of private equity in the UK (2005) reports that VC-backed companies increased their sales, export, investments and employment at a considerably higher rate than the national average. VC-backed firms create jobs at a significantly faster rate than their non-ventured counterparts: in the US, between 2000 and 2003, the employment base of VC backed companies increased by 6.5% whereas for the overall total private sector this figure declined by 2.3% during the same period (NVCA, 2004). In Europe, employment in VC-backed companies grew by an average rate of 30.5% annually between 2000 and 2004, forty times the annual growth rate of total employment in EU 25, admittedly from a small base (EVCA, 2004). Like employment, VC-backed companies outperformed their national counterparts in every sector when measured by sales.

Impact on innovation

Empirical evidence shows that venture capitalists have spurred companies' innovation (Hellmann and Puri, 2000; Lerner and Kortum, 2000), especially for small innovative firms operating in the high-tech sectors. In the US, the biggest VC market, 78.3% of the investments are in the high-tech sectors and, in the UK, more than half of the companies backed were in the technology industry (communications, computer, electronic, biotech and medical). The performance of VC-backed firms in the US, but also in Europe, is significantly different from that of similar firms that did not receive this form of financing. Moreover, listed companies with previous VC-backing have better returns one year after flotation than those which were not VC-backed³⁸. Differences in performance pertain to many aspects, such as R&D intensity, sales growth, and investment, which have been found to be generally higher for venture-backed firms than for others. These firms bring products to market more quickly (Hellman and Puri, 2000) than similar enterprises. Companies use VC investment to fund long-term, value-adding developments such as R&D, marketing and training which have in turn resulted in significant improvements in turnover and profitability (EVCA, 2002).

VC investment in the US has played such a pivotal role in incubating and commercializing many of the breakthrough innovations that have occurred in the life science sector that life science innovation is seen as dependent on venture capital³⁹. Some of today's market leading companies in the life science sector (Genentech, Amgen, Nellcor) were VC backed. Of the top 50 firms in US R&D, 41 were either originally venture-backed or were major acquirers of VC-created companies⁴⁰. In Europe, most VC-backed companies also feel that without VC investment, they could not have existed (60% of them) or would have developed more slowly (EVCA, 2004).

US venture capital-backed companies have a higher rate of patenting: a dollar of VC can lead to ten times more patenting than a dollar of traditional corporate R&D. This higher rate of patents corresponds to "real" innovations: these patents are more frequently cited in other patent applications and are more aggressively litigated as companies seek to defend a key intellectual asset. Moreover, the venture-backed companies are also more frequent litigators of trade secrets, which suggests that they are not simply patenting more in lieu of relying on trade secret protection (Kortum and Lerner, 1998). Venture-backed companies are also seeking patent invention to enhance their attractiveness and consequently increase the probability of obtaining financing or the valuation assigned in that financing. As VCs may find it difficult to discern the quality of a firm's patent holdings, firms apply for patents and copyrights of marginal worth (Kortum and Lerner, 1998). A survey undertaken by EVCA (2003) among European venture capitalists highlights the importance of patents for the VC industry: VC have around 60% of their total number of portfolio companies currently relying on a business model depending on a specific patent. For those companies, VC represents the main source of finance when filing for a patent.

38. According to Mr. Peter Linthwaite, BVCA, Chief Executive

39. *Life science innovation dependent on venture capital*, NVCA, 1 December 2004.

40. *Venture-backed companies outperformed peers in 10 industries during US economic downturn*, NVCA, July 20, 2004

Box 2 The contribution of venture capital- backed companies to growth and innovation (to be continued)***Dissemination of knowledge***

VC shifts the allocation of R&D to smaller firms: small company contributions to R&D amounts to 20% of total US industry and ventured companies spend over twice as much on R&D as non-ventured companies (NVCA, 2004). In particular, small firms in the venture dominated IT and medical-related sectors are major contributors to these trends. The increased penetration of small company research is most striking in the biotechnology sector: the small company share of biotech research has expanded from some 3% in 1984 to nearly 40% in 2003, whereas the share of the large companies shrank from 31% in 1984 to 18% in 2003. Indeed, in the life science sector, the productivity challenges⁴¹ led major companies to focus on core activities and provided an opportunity for start-ups and small companies to acquire non-core life science patents discarded by others and leverage the untapped wealth of intellectual property in R&D driven organizations.

However, small companies not only fuel innovation on their own, but they also feed larger R&D firms with a steady stream of ideas. Apart from strong internal R&D capability and strong alliances with academics or government researchers, companies enhance their ability to innovate through CVC. They consider it as a tool to scan, identify, and leverage or harness entrepreneurial or innovative technologies. Empirical research shows that in some sectors, firms which invest in CVC realize significant increases in their internal innovation rate (Dushnitsky and Lenox, 2004a). In industries where entrepreneurial ventures are an important source of innovations, CVC is a vital part of a company's innovation strategy: Dushnitsky and Lenox (2006) found a stronger relationship between CVC investment and firm's value creation for the devices, semiconductor and computer sectors. CVC may provide an effective means of scanning the environment for novel technologies that either threaten or complement their core businesses. For example, IBM launched in 2005 a licensing program to allow venture-backed startups to license its 40,000 patents. IBM's strategy is to tap VCs to beat Microsoft: IBM said "it is forming a brains trust a prominent venture capitalists in a bid to encourage innovators to develop products for Big Blue instead of Microsoft"⁴². Increases in CVC investments are associated with subsequent increases in a firm's quality patenting.

The non-financial contribution of venture capitalists is a key factor

54. There is widespread belief that active financial intermediation positively affects the behaviour of portfolio companies (Botazzi et al., 2004). Venture capital is a form of financial intermediation where investors can choose how much to become involved with their portfolio companies. Most venture capitalists in the US adopt a hands-on strategy in their working relationships. Traditionally non-US VC are less involved in the strategic decisions of their investments, but evidence in Europe shows that more and more VC are becoming hands-on investors, participate more in the main decisions of the firm and have increased their risk tolerance (Botazzi et al., 2004). In other countries, there is no tradition of having such hands-on venture capitalists but there is some evidence that an increasing number of Japanese venture capitalists are becoming less and less hands-off and are taking a much closer interest in their portfolio companies.

55. Hands-on venture capitalists play roles over and above those of traditional financial intermediaries, which find it more difficult to value assets as collateral. The venture capitalist's contribution in financially-oriented areas (monitoring financial performance, regular budget reporting and giving financial advice) is obviously high, but their involvement also covers a wide range of non-financial areas. These include strategic advice, networking opportunities, providing focus and support and enhancing company credibility, their relative importance depending on the VC-backed company's development stage.

41. Major challenges faced by life science companies are escalation of the costs of R&D, higher risks of development failure associated with a greater rate of innovation, global tightening of regulatory policy and diminishing advantages of being first to the market

42. Red Herring, *IBM taps VCs to beat Microsoft*, 22 August 2005

VC is particularly suited to finance and nurture innovative companies at an early-stage of development (Hellman and Puri, 2002). For these companies, the expertise of the VC firm, its knowledge of markets and of the entrepreneurial process, and its network of contacts are most useful to help realise their growth potential.

56. As VCs are often industry specialized and entrepreneurs may lack management skills, VC strategic advice is a highly valuable input to many venture-backed companies, especially during developing stages. VC firms rely on their industry-specific human capital as their most valuable intellectual asset to identify good investment opportunities and to manage these investments (Gompers et al., 2005). VC's executives have a long-standing and wide range of experience: many have worked in the industry, others have a financial background and all have the specialist experience of funding and assisting companies at a time of rapid development and growth. VC usually have a better view than the entrepreneur of the company's market and competitors: they know the participants, the trends, the growth expectations, and are in a better position to make educated estimates about the market potential and the possible share for the company in the market as well as the value of that share. Broad knowledge of the sector by the VC complements management's deep knowledge of the technology or business model and improves the ability to undertake comparative analysis. VC's experience helps to bring firms with new ideas (especially young ones lacking experience) to the market and to expand their commercial contacts (Del Colle et al., 2006).

57. Apart from giving financial and strategic advice, hands-on investors can assist their portfolio companies in other ways such as helping to establish a management team and to structure incentives for the management, for example, with stock-options and other share incentive schemes (Botazzi et al., 2004). VC is related to a variety of professionalisation measures such as human resource policies, the design of employee compensation schemes, the adoption of stock option plans, the implementation of information and accounting systems. When venture capitalists support the professionalisation of their companies, they are not only concerned with recruiting high level executives but become also involved with building the entire management team such as hiring a marketing and sales executive (Hellmann and Puri, 2002). Indeed, VC-backed firms make greater use of business contacts for recruiting, especially for recruiting deeper down into the organization like for sales and marketing personnel as well as for administrative and managerial personnel. VC also affects the timing of key professionalisation events in the company by, for example, speeding up the introduction of stock-option plans. In short, the contractual solution for corporate governance issues arising from information asymmetry is handled by close involvement in the operations of the company.

Access to information is crucial for VCs ability to enhance the value creation process

58. Venture capitalists use several different corporate governance mechanisms such as performance-based compensation, board and voting control and liquidation rights to control and motivate the entrepreneur so as to overcome the issues of asymmetrical information and moral hazard. They set up contractual provisions to ensure a desired trade-off between incentives and control. Venture capitalists usually give up superior control, voting and liquidation rights associated with their securities if the company attains a desired level of performance. The different control and cash-flow rights shift from the VC firm to the entrepreneur at different levels of performance. If the company does not deliver the required performance, they retain superior control rights. With superior performance, the entrepreneur obtains more control rights and more cash-flow rights. This provides the entrepreneur with an incentive to increase the value of the firm and is a solution for the agency problem which occurs even in these firms.

59. As investment agreements are very much tailored to the venture-backed company and depends on the degree of involvement of the venture capital firm, there is a wide diversity of cash flow and control rights arrangements. Cash-flow rights depend on the capacity of management to meet all performance and time vesting milestones or contingencies. Control rights allow the VC to participate in the main decisions

of the entrepreneur. Cash-flow rights, control rights and future financing are frequently contingent on observable measures of financial and non-financial performance.

60. VC contracts often contain convertibility clauses (convertible preferred stock), exit provisions, the possibility to elect board members, to impose non-compete provisions vis-à-vis the entrepreneur and confidentiality agreements to obtain full control of the firm if the project is badly underperforming. VC firms use anti-dilution rights, contingencies or milestones, and vesting in order to increase the sensitivity of the entrepreneur's cash flow rights to performance (Kaplan et al., 2004). Contractual provisions such as vesting and non-compete clauses improve the bargaining power of the VC firm if the entrepreneurs try to "hold up" the firm (Kaplan and Stromberg, 2000). Board representation allows VC representatives in the board of directors to have a power of veto over some important decisions (Hellmann, 1998) affecting the company's business such as major capital purchases, changes in strategic direction, business acquisition and disposals, appointment of directors and auditors, and additional borrowings. VC contracts also often mix equity and debt with the latter giving them additional rights especially in the case of downside risks. Hands-off investors who usually leave management to run the business and do not ask for a seat on the board or greater access to information may adopt a more active approach in crisis periods when targets are not met, the company defaults on payments or runs into other types of difficulties.

61. Board representation provides the VC with the rights to control corporate decisions, but it may also be used to ensure access to the company's trade secrets and therefore knowledge of its intellectual assets. As most CVC programs are strategically-driven to provide the corporate venture capitalist with a window on technology, these corporate investors often secure board seats, or at least board observation rights, which provide them with knowledge of the ventures' key activities and technologies.⁴³ Through these mechanisms, incumbent firms that invest in entrepreneurial ventures may increase the stock of knowledge they gain access to, and ultimately create more firm value. A study of 91 US-based ventures that operated mainly in the computer and communication industries during the late 1990's, found that in 31% of the cases the corporate investor held a board seat and in 40% of the cases they held observer rights (Maula, 2001). These results are echoed in a recent survey of European venture capital practices (Botazzi et al., 2004).

62. CVC firms also institute specific organizational arrangements to encourage and funnel learning from ventures. Dushnitsky and Lenox (2006) report that Sony Corporation created two parallel and distinct functions responsible for knowledge transfer between its portfolio companies and the corporation. In addition to securing board seats for its CVC group (Sony Strategic Venture Investments), Sony's business divisions established direct liaisons with the ventures. The specific goal was to learn about and source the portfolio company's technology. These structures and processes are aimed at increasing interaction between firms' personnel, accommodating information flows and ultimately leading to successful learning and knowledge transfer.

63. Even without board representation, VC may have access to knowledge about the VC-backed company's intellectual assets basis and trade secrets both before investing, through the due diligence process, and after investing as they try to monitor their investment. Indeed, firms seeking external financing must often make extensive disclosures about their technology. Investors engage in information collection before deciding whether to invest, in order to screen out *ex ante* unprofitable projects and weak

43. Among the potential strategic benefits of investing in new ventures is that a firm may be able to build demand for its technologies by helping develop ventures that provide complementary products and services. Such complementarities are common in presence of demand externalities, *e.g.*, software applications to be used with the Palm operating systems or games developed by SonyPlayStationII. Consistent with this, Dushnitsky (2004) finds that the likelihood of an investment in innovative venture increases with the level of complementarity between the firm and the venture.

entrepreneurs, and also once the project is underway to monitor their investment. During the due diligence process, companies have to provide investors with strategic information about what they regard as the critical factors for success as well as their performance indicators for the business (e.g. daily sales for retailers, stock level for manufacturers, turnover of staff for service businesses). VC-backed firms fearing that the venture investors might exploit their ideas will in turn patent more. While potential investors may sign non-disclosure agreements, there is still a real possibility that an entrepreneur's ideas will be directly or indirectly transferred to other companies without sufficient reward.

64. Ex-post investment reporting is highly investor and company-specific and is also subject to private arrangements. There are standard sections relating to information obligations but the content differs from company to company. In order for venture capitalists to monitor their investment, companies provide them with certain regular updates concerning their financial condition and budgets as well as a general right to visit the company and examine its books and records. This sometimes includes direct access to the company's auditors and bankers. These contractually defined obligations typically include timely transmittal of audited annual financial statements, annual budgets, and unaudited monthly and quarterly financial statements.

65. To follow their investment, venture investors not only ask for more regular and more formal reporting but set milestones. Venture capitalists impose discipline on the format of information reported as well as on the analysis of where the company is and where it should be. Analysis is complemented by the monthly review of KPI against milestones. If venture capitalists pay a lot of attention to measurement systems and performance indicators, this goes beyond monthly review to include metrics that give visibility into the future such as understanding customer behaviour or measuring the company's performance in a related area. Usually, these metrics are developed during the due diligence process and are implemented after the investment.

66. Beyond setting milestones to follow their investment and to be assured that targets are met, venture capitalists also help companies to spot the signs of troubled times ahead so as to avoid business pitfalls. Danger signs obviously contain financial indicators, but there are also non-financial ones. The most often used by venture capitalists are: cash flow, increasing level of fixed costs, fixed price contracts, failing to meet interest or dividend payments but also inaccurate or untimely management information, high turnover of key employees, dependence on too few customers or suppliers, extravagant executive lifestyle, autocratic management, breaches of bank covenants, deteriorating credit control, over-expansion and loss of control, and lack of response to a changing environment. VC can rely on reporting guidelines such as those issued by EVCA in 2000 and updated in June 2006 to define contractually with the management the reporting and the monitoring processes.

67. Considering the efficiency of the contractual arrangements that allow VC to control their portfolio company, to foster growth and innovation and to enhance the value creation process, evidence shows that some companies prefer staying private. VC-backed firms have diverse exit options (Box 3) which mainly include trade sale and sale to another VC, to a financial institution or to a company. Apart from increasing regulatory burdens in the market, VC-backed companies may prefer to stay private because it allows managers to focus on the business and talk to one shareholder instead of many. It also speeds up the decision-making process: when companies experience rapid change in the environment, they need flexibility to raise money which is more difficult on the market.

Box 3. Exit options by VC are not usually through IPOs

Even if exit on the capital market is traditionally considered as a very successful and prestigious exit for VC-backed firms, most divestments occur mainly through trade sales and sale to another VC, even in the US. Divestments through the stock market as a percentage of investments in the year are of 10.8% in the US whereas they are of 5.5% in Europe in 2004. Other channels are trade sales with the firm being sold to another enterprise. In Europe, in 2005, more than 40% of the divestments were trade sales (22.6%) and sale to another VC (18.4%) (EVCA). In the US, NASDAQ has long been a traditional exit path for new intellectual assets-intensive companies but because of the increasing cost of listing induced by the implementation of the Sarbanes-Oxley Act (app. 1% of market capitalization), fewer small companies are listing on NASDAQ. Moreover, since 2000, the IPO markets have been sluggish and this has probably affected the rate of exit via equity markets.

Nevertheless, it has been noted that the US VC industry has greatly benefited from a developed stock market and the lack of a pan-European stock market for small tech companies is frequently cited to explain the comparatively low rate of exit on the market for European venture-backed companies. It is argued that fragmentation of the stock markets in Europe results in lower valuation of companies as there is not a critical mass of peer companies. Da Rin et al. (2004) underline the importance of an exit option on the market to boost innovation from VC-backed companies. They found that the opening of "new" stock markets targeted at entrepreneurial companies increases investment in both the early-stage and high-tech innovations activities.⁴⁴ They believe that the prevailing approaches to stimulate early-stage and high tech investments of VC by channeling more funds into VC are less successful than supporting the creation of stock market targeted at entrepreneurial enterprises.

Impact of a friendly-legal environment to foster an active VC market

68. Given the special demands for conditional control and for information by active investors and especially VC, the flexibility of the legal system might be quite important. The legal system, both for the investor and for the company, affects the contractual and non-contractual aspects of the financing relationship. Some elements of the transactions relating to shareholder agreements, voting covenants, transfer restrictions and exit rights may either be not regulated or prohibited under a country's law and this can translate into complicated deal structures, higher transaction costs and a higher risk profile leading to a higher cost of funds⁴⁵. The effect of the legal system operates not only directly through individual contracts and actions, but also more broadly by affecting the way financial intermediaries develop their own skills and capabilities. The legal system affects incentives to provide value-added services such as advice and support, and to exert governance (Botazzi et al., 2005). The success of the VC market in the UK might, it is argued, derive from the UK limited partnership form for the VC firms that offers advantages over other fund structures.

69. The development of a pan-European VC industry is also limited by, *inter alia*, the legal forms of funds (Da Rin et al. 2004). Around half of the countries have a limited partnership structure as the main, or one of the main, local structures used for private equity funds: the UK, Ireland, Germany, The Netherlands, Sweden, Finland, Denmark and the US. France, Portugal and Italy have fairly similar vehicles which are neither partnership nor corporate vehicles. Even within the broad classification "limited partnership" there is no standard: in the UK or in Ireland, limited partnership is not a legal entity. This means that a fund-raiser in one jurisdiction cannot assume that a vehicle from his local jurisdiction will be treated the same way across Europe as some jurisdictions make a difference in the treatment of legal personality and others do not.

44. Da Rin et al. (2004) use a high-tech ratio defined as the ratio of high-tech to total private equity investments and the early-stage ratio as the ratio of early-stage to total venture investments. High-tech covers the following sectors: communications, computer-related, other electronics related, biotechnology, medical and health related.

45. For example, as under the Mexican law these elements of a venture capital transaction are either not regulated or prohibited, the Securities Market Law has introduced in 2005 a new type of corporation, the *sociedad anonima promotora de inversion* (SAPI) to accommodate venture capital investments.

VIII. CONCLUSIONS

70. Competition is forcing many companies to accumulate intellectual assets and to seek to use them effectively to produce profitable innovations. This ongoing process has important implications for management, the design of information and control systems, oversight by the board and transparency with respect to shareholders and other stakeholders. The report indicates that many companies are finding it difficult to adjust to the changing circumstances. Board members and sometimes executive managers express dissatisfaction with the information they are receiving about the effective use of intellectual assets (i.e. value creation) and many investors have expressed the same sentiment. It is against this background that the report has highlighted three related themes: what should be disclosed and how; what kind of information should be produced by the firm; and how can this information improve the management and operation of companies, including risk management. There can be a role for public and private initiatives to raise awareness about the concept of intellectual assets, its importance and existing best practices for intellectual assets reporting.

71. Even though much time and effort has been extended over the past decade in debating reforms to accounting standards so as to incorporate a wider range of assets on the balance sheet, the conclusion from interviews with a number of participants is that this has ultimately proved to be a dead end. Financial accounts cannot and should not be used to reflect the market value of a company. It is hardly surprising that there is a large difference between the value of a company as reflected in the balance sheet and its market valuation. For listed companies, the policy issue is whether the market process to establish valuations is efficient and based on material and reliable information. There appears to be significant opportunities in all countries to improve market efficiency.

72. Competition is already encouraging companies to improve their reporting and managerial practices with respect to intellectual assets and strategies for value creation. This is usually done through narrative reporting. Where firms disclose more about their assets and value drivers (i.e. how they make assets productive and valuable) they are rewarded by improved market valuations. This effect is even more pronounced for the small cap companies that suffer from lack of coverage by analysts and sector/branch publications. There is also evidence that some key market participants devote significant resources to discovering under-valued companies by using various and diverse sources of information (i.e. the mosaic approach) including interviews with management.

73. Nevertheless, there is evidence that in some sectors and jurisdictions, and for some types of firms, market solutions are associated with delays and frictions, including the slow diffusion of best practices, which suggests a potential role for policy measures and/or private initiatives. Particularly important is support by the relevant authorities for narrative reporting. Evidence suggests that narrative reports can be a suitable framework for enhanced disclosure of non-financial and forward-looking information on the company's value drivers and main risks. However, investors also often seek comparability leading to suggestions that companies be given guidance on how best to make disclose about intellectual assets and the associated value drivers, and that they use a "common language".

74. Although there is an information externality argument for some harmonisation, research suggests that any guidance about improved disclosure on intellectual assets should remain principles-based and voluntary. Given the wide range of intellectual assets held by firms in different industries, the principle-based approach allows companies flexibility in applying the guidance and addressing their own

circumstances and risks as companies have unique stories with respect to their value creation process. A more prescriptive approach could engender a box-ticking, mechanistic approach to ensure compliance rather than allowing companies to produce meaningful reports tailored to their own circumstances. As experience develops, more harmonisation can be encouraged.

75. Guidance has also been forthcoming in the form of specific intellectual assets reports including guidelines about managing such assets. Experience with such specific reports is still quite limited in a number of countries, but research suggests that they have benefited non-listed innovative companies with respect to funding their research and innovation projects, improving the management of their intellectual assets, enhancing resource allocation decisions at company level and better managing risk. Intellectual assets reports offer an alternative for non-listed companies that do not face the reporting requirements of listed companies and provide flexibility to discuss how they create value. Such reports and the effort some governments have devoted to publicising them might also have a positive effect by speeding the dissemination of best practices, including with respect to asset and risk management.

76. The development of intellectual assets reports and increased attention to narrative reporting has also focused attention on key performance indicators (KPI) and management, boards and investors have all been pressing for such information. The development of industry-specific indicators by the private sector would seem to offer the best way forward since they can accommodate the very different role the various intellectual assets play from sector to sector. Resource allocation strategies for investors often rely on peer company comparisons by analysts who use a selected group of standardised and clear indicators on an industry basis – and management often works in a similar way. Companies should probably release only a few significant indicators to support more extensive contextual and narrative reporting with the following key features: *(i)* standardised; *(ii)* linked to a revenue stream; *(iii)* forward-looking; and *(iv)* difficult to manipulate legally.

77. In developing reports and associated KPIs there has been a tendency sometimes by both the private sector and the authorities not to make a sufficient distinction between value creating intellectual assets reporting and Corporate Social Reporting. Some Corporate Social Responsibility guidelines have, for example, listed expenditure on in-house training as a KPI, but although interesting from an industrial relations viewpoint, it contributes little to understanding how the asset is to be used to create value. For value creation purposes, it would be more useful if incorporated in the context of narrative reporting where its role in the value creation process can be explained and assessed.

78. Intellectual assets-intensive companies feature specific operational and business risks and this can have a major impact on the value of company's concerned and therefore needs to be a part of company disclosure. These companies face heightened risks as innovation cycles are variable and incur substantial investments. The risks must be identified and assessed, then managed and mitigated by the implementation of a strong internal control system. Some feel that intellectual assets reporting frameworks could be further developed to encourage consideration about internal control systems, based around existing standards.

79. Small listed intellectual assets intensive companies face a particular challenge arising from poor analyst coverage. The lack of research coverage has been found to impact company valuation, liquidity and ultimately the growth of company. Small listed companies can mitigate the problem of poor analyst coverage by taking a proactive stance in their corporate reporting and this can also encourage analysts to cover a company. The existence of special segments of stock markets might also improve the relationship between investors and the companies and thereby underpin valuations, innovation and growth.

80. Evidence suggests that the corporate governance of venture-backed private companies is efficient in driving growth and innovation through the use of intellectual assets, but venture capital remains under-developed and passive in many countries. The real importance of venture capital is that they provide a key

human capital resource (e.g. experience, business skills, networks) to realise value from a new business model or technology. The information asymmetry between venture-backed companies and their investors is resolved through contractual arrangements involving extensive reporting requirements and specific control rights that are contractually defined. There is a need in some countries to promote legal friendly environments to foster active venture capital. Most of the corporate governance mechanisms established by active venture capital cannot be replicated for listed companies. However, information systems used in venture-backed companies which incorporate measurement systems and performance indicators could be used by public companies to improve board oversight of the strategic decision-making process and of risks.

81. In sum, the development of intellectual asset intensive companies and their focus on innovation raises a number of issues from reporting and internal control to risk management and the operation of the boards. These are not just issues for a small number of high tech companies but also for a much broader population of companies that have been forced to move to higher value added operations (and hence a greater use of intellectual assets) in order to meet competition. There is, however, evidence that the range between companies in their management and business practices from good to bad is extraordinarily wide. For the best firms, markets work very well and there are strong incentives to improve transparency, risk management etc. Others will either be forced from the market or be allowed to survive on other than commercial merits, usually depressing growth in the economy. Either way, there is a policy issue about how best to disseminate good practice, a challenge even more important now with increased global competition.

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