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Financial disclosure and the board: does independent directors always fit? [1]

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Abstract – Over the last decade, the multiplication of high profile corporate scandals and bankruptcies has put the control of public companies' upper management at the forefront of the agenda. From this point of view, information disclosure is universally regarded at the cornerstone of a proficient institutional design. Yet, reliable information disclosure crucially depends on corporate governance: who is accountable for the production of financial and non-financial reporting? Invariably, the analysis points to the responsibility of the board of directors, that interface with the external auditors, the internal auditors, and the management, and certify financial statements and other public information – in almost all jurisdictions. The "Conventional wisdom" considers 'independent' board members as the essential attribute to improve the quality of public disclosure. In a sense, this approach neglects expertise or at least subordinates it to independence. Arguably, for certain business models, effective certification requires firm-specific expertise. It will be the case, in particular, whenever intangible resources are an important value-driver for the firm. However, we argue that this form of expertise is negatively related to independence as it is commonly measured and evaluated. As a consequence, focus on independence may have (had) adverse consequence, by reducing the ability of the board to collectively certify financial and non-financial accounting information. By contrast, "grey" or "affiliate" directors may enhance the overall quality of financial and non-financial statements.

Key words: board of directors, information disclosure, accounting, intangible assets

JEL classifications: G30, M21, D80, M41

Introduction

Over the last decade, the multiplication of high profile corporate scandals and bankruptcies (Enron, Worldcom, Parmalat, Lehman Brothers, etc.) has put the control of public companies' executive management at the forefront of the agenda. From this point of view, information disclosure is universally regarded at the cornerstone of an effective institutional design, especially when (minority) shareholders are at 'a distance' of the company and its business model (Berle and Means, 1932, Book III).

Yet, as regulators and academics have long ago recognized, relevant and reliable information disclosure crucially depends on corporate governance (Brown, 2004): who is accountable for the production and certification of financial and non-financial reporting? This issue necessarily implies to penetrate the 'black box' of public companies, to investigate the set of relationships existing between the different firm's constituencies (Cohen, Krishnamoorthy and Wright, 2004). Invariably, the analysis points to the responsibility of the board of directors. Among the various roles that the literature attributes to the Board (see e.g. Johnson, Daily and Ellstrand, 1996), the most important, at least the one who received the greatest consideration, is the monitoring role. This role notably includes hiring and firing the Chief Executive Officer (CEO) and other executive managers, determining executive pay and supervising the processes of reporting and disclosure of the business firm. The Board achieves this latter objective by recommending the external auditor to shareholders, and by interfacing with the external auditors, the internal auditors, and the management. In addition, in almost all jurisdictions, the board should certify financial statements and other public information[2]. It helps alleviate the agency problem and cost by facilitating the regular release of unbiased accounting information by managers to those who hold a stake in the business firm (including shareholders), thus reducing the information asymmetry between insiders and outsiders.

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[2] In the U.S. case, existing signature requirements for reports filed under the 1934 Exchange Act demand at least a majority of directors to sign annual reports. This responsibility requires more than guarantying the company's compliance with generally accepted accounting principles. According to the Second Circuit Court of Appeals, the "critical test" is "*whether the financial statements as a whole fairly present the financial position*" of the company (see U.S. v. Simon, 425 F. 2d 796, 805-6 (2nd Cir. 1969), cert. denied, 397 U.S. 1006 (1970)). The importance of the board in shaping the overall quality of public company reporting is regularly reaffirmed by the Securities and Exchange Commission (Brown, 2004), whose primary function is to ensure adequate disclosure. A conspicuous example is provided for by the W. R. Grace Report (1997) – a section 21(a) Report – that notes: "*the Commission considers it essential for board members to move aggressively to fulfil their responsibilities to oversee the conduct and performance of management and to ensure that the company's public statements are candid and complete*". In the British case, the Combined Code on Corporate Governance (2003) – listing rules required public company to report on how it applies the principles in this Code or to provide an explanation – clearly states: "*Non-executive directors should scrutinise the performance of management in meeting agreed goals and objectives and monitor the reporting of performance. They should satisfy themselves on the integrity of financial information and that financial controls and systems of risk management are robust and defensible*" (p.5). In the French case, legal duties for directors are stated in the *Code de commerce*: article L.232 indicates that in listed companies, the board must certify the financial statements.

The crucial question is then the following: what are the characteristics of the board likely to improve the effectiveness of this certification role? The "conventional wisdom" (Bhagat and Black, 1999), both for law and economic scholars and regulators, points to 'independence' as the essential attribute. As noted by Cunningham (2007), it is by now usual to answer to corporate crisis by looking to independent directors, where independence is defined or proxied through a set of objective criteria (*de jure* independence). The Sarbanes Oxley Act, passed in 2002, is no exception, requiring that audit committee be comprised solely of independent members. The objective is clear: *de jure* independence should help to limit conflict of interests, thus increasing the performance of directors in their monitoring activity. In the case of certification, independence guarantees that the decision not to validate biased information is made without collusion or delay.

Some recent evolutions suggest that this 'conventional wisdom' is progressively challenged, with expertise being increasingly recognized as a decisive attribute, especially for the audit committee (Cunningham, 2007). Whereas the Sarbanes Oxley Act (2002) followed a well-marked trail by strengthening independence, it also introduced a path-breaking provision, by requiring that all audit committee members have financial literacy and that at least one person be a financial expert (section 407)[3]. The idea is intuitive: generic expertise in accounting and finance, acquired through education or professional activity, potentially increases the relevance and reliability of disclosure and improves the quality of financial and non-financial reporting that the Board must certify.

Yet, for certain types of business models, effective, trustworthy certification requires *firm-specific*, in complement to *generic*, expertise. It will be the case, in particular, whenever intangible resources are significant drivers for the performance potential of the business firm. This is also true for the other monitoring tasks performed by the board: for example, an opportune, timely decision to replace the CEO may require, in certain conditions, firm-specific expertise, perhaps more that *de jure* independence and/or generic financial expertise.

However, and the story becomes stirring here, we argue that this latter form of expertise is negatively related to independence as it is commonly defined and assessed. This point does not hold for generic expertise, that can easily be combined with *de jure* independence. As a consequence, focus on independence may have (had) adverse consequence, by reducing the ability of the board to collectively discover and certify financial and non-financial firm-specific knowledge in circumstances that are likely to be significant in contemporary businesses. To some extent, our analysis may bring some light to a long standing, yet puzzling, empirical observation: independence has a

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[3] Before the accounting scandals of the early 2000's, the Blue Ribbon Committee (1999), launched by the SEC Chairman Arthur Levitt, made a similar recommendation (see recommendation 3, p.12) to the New York Stock Exchange and the National Association of Security Dealers, promptly adopted by the NYSE and NASDAQ. In the U.K., the Combined Code (2003; see *supra*, note 1) also contains financial expertise recommendation: "*The board should satisfy itself that at least one member of the audit committee has recent and relevant financial experience*" (p.16, provision C.3.1.).

negligible or negative effect on firm performance (see e.g. Klein, 1998; Dalton, Daily, Ellstrand and Johnson, 1998; Bhagat and Black, 1999 ; Klein, Shapiro and Young, 2005 ; Bhagat, Bolton and Romano, 2008)[4].

To sum up, we argue that the production and certification of relevant financial and non-financial statements may require independence, expertise in accounting and finance but also firm-specific expertise. Given the fact that *de jure* independence and firm-specific expertise trade-off, there should exist an optimal share of independent directors for each company, related to the core characteristics and changing situation of its business. We derive two main implications from this analysis. On the one hand, 'super-majority' boards (that is board with at least 80% of *de jure* independent members) appear to be attractive devices in very limited cases – contrary to what is usually called for[5]. On the other hand, "grey" or "affiliate" directors (that is directors that do not meet the standard criteria of independence while not being member of the firm's executive management) may enhance the overall quality of control, including certification. This latter category includes agents performing expert services to the company, but also worker representatives, as they are provided for public companies by virtue of (corporate or labor) law in more than 10 European Union member States.

The rest of the paper is organised as follows. The first section analyses the type of information on the business firm required by investors and shareholders to make accurate make or buy decisions on securities. The main point is that the set of required information to be disclosed is jointly constituted of market-driven and firm-specific information. This second type of information is likely to be important in business models where performance is mainly driven by intangibles assets. The second part focuses on accounting, as the main device allowing the transmission of information (both market driven and firm-specific) from the inside to the outside. However, we argue that certification by agents disposing of a broad business skill becomes crucial whenever firm-specific information is to be disclosed. The third section focuses on the board of directors: we discuss in particular board characteristics likely to induce an efficient certification. The existence of a trade-off between two of these characteristics (*de jure* independence and firm-specific expertise) is emphasized. Section fourth concludes.

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[4] See e.g. Bhagat, Bolton and Romano (2008): "*Board independence, however, is negatively and significantly related to contemporaneous, next year's, and next two years' operating performance. This result is surprising, especially considering the recent emphasis that has been placed on board independence by the stock exchanges' amended listing requirements post-Enron; however, it is consistent with prior literature on boards*" (p.1850)

[5] A conspicuous example is offered by the rating provided, since 2002, by the private firm *Institutional Shareholder Services*. Corporate governance of 7500 listed companies (including 2500 in the USA) is assessed on the basis of 60 different criteria and an index, the *Corporate Governance Quotient* (CGQ), is built. In 2005, the adoption of a "super-majority board" (defined here as a board with at least 90% independent members) was considered as the 4th most important criteria out of 60, with a corresponding weight in the final index. See Institutional Shareholder Services, 2005, "Explaining the CGQ methodology change process", http://www.issproxy.com/pdf/CGQevolvingmethodologyWP.pdf

1. The informational basis of stock market investment and corporate disclosure

This section disentangles the informational basis of financial decision-making in stock market (1.1) and relates this basis to the kind of resources (tangible *versus* intangible) involved at the firm level (1.2).

1.1. Financial investors and the relevant information set

Both standard setters – in particular the U.S. Financial Accounting Standard Board (FASB) and the International Accounting Standard Board (IASB) that regulates E.U. listed corporate groups – and the vast majority of accounting scholars now share the idea that the primary function of financial and non-financial reporting is the provision of information to investors, so as to enable them to assess the amounts, timing and uncertainty of future cash flows from their investment in corporate shares or debt securities (SFAC n°1, §37; IASB Framework, §15). Under this 'decision usefulness paradigm' of accounting (Hitz, 2007), (information) relevance is defined as the degree of correspondence between required and disclosed information. Then, the assessment of relevance necessarily leads to investigate the kind of information on the business company (as opposed to macroeconomic evidence) required by financial investors to make accurate sell or buy decisions. In the following, we rely on basic financial theory to provide some clear-cut answers.

A first set of hypothesis can be assumed on the characteristics of investors receiving the information. Let suppose that investors are rational (they maximize the expected utility of lifetime consumption) and may borrow or lend without default, at a given interest rate i. Individual preferences are then irrelevant (consumption and investment decisions can be separated) and the sole information required by investors is the ability of the firm to deliver future revenue (see e.g. Brealey and Myers, 2005, Ch.2, 3 and 4). "Fundamental value" of the firm (FV) can then be defined as the discounted value of (expected) net future cash flows to its residual claimers:

$$FV = \sum_{t=1}^{\infty} \frac{R_t^e}{(1+i)^t} \quad (1)$$

where R_t^e is the expected net cash flow at time t, and i the usual discount rate.

A second set of hypothesis can be assumed on the origin of these (expected) cash flows, that is, on the type of resources[6] deployed by the production process. In the simplest case, the set of resources is only composed of tangible, separable resources. Then, the fundamental value of the firm is assumed to be equal to the sum, properly discounted, of the net products of these resources (see e.g. Brealey and Myers, 2005, Ch.9):

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[6] We prefer not to use the term 'assets' because of its special accounting meaning: an asset is a resource that is recognised in the left side of the balance sheet.

$$FV = \sum_{t=1}^{\infty} \frac{r_{1,t}^e}{(1+i)^t} + \sum_{t=1}^{\infty} \frac{r_{2,t}^e}{(1+i)^t} + ... + \sum_{t=1}^{\infty} \frac{r_{n,t}^e}{(1+i)^t} = \sum_{j=1}^{n} \sum_{t=1}^{\infty} \frac{r_{j,t}^e}{(1+i)^t} \qquad (2)$$

where $r_{j,t}^e$ is the expected net product of resource a_j for time t, $j = (1, …, n)$. In this way, the firm merely is a *collection* of n resources, and the fundamental value of the firm corresponds to the aggregation of the fundamental values of its resources.

A third set of hypothesis relates to the existence of an efficient pricing for each firm's resource as well as for its stocks. Suppose that each resource is traded in a competitive, liquid market by rational investors. Then basic finance theory suggests that the (equilibrium) price (p_j) of a resource a_j equals its fundamental value, so that no mispricing occurs. (Capital) markets are then 'efficient', in the sense that the price of a resource fully and correctly incorporates all available information on the ability of this resource to generate net revenue through time (Fama, 1970; Malkiel, 1992). As applied to the business firm, the Efficient Capital Market Hypothesis (ECMH) implies that the stock price of a firm (P) is equal to its 'fundamental value'. This identification of fundamental and market values for a stock is a typical result (and not just an hypothesis) of the Capital Asset Pricing Model (CAPM), the standard model of equilibrium asset pricing, where all investors share homogenous beliefs of the joint distribution of (future) payoffs on the stock (Sharpe, 1964; Lintner, 1965). If all the resources as well as the firm's stocks are traded on (fundamentally) efficient markets, then equation (2) becomes:

$$FV = P = \sum_{j=1}^{n} p_j \qquad (3)$$

Summing up, under this whole of hypotheses concerning investors, the economic nature of the firm and the functioning of markets, the (fundamental) value of a firm (FV) can be deduced from the market value (p_j) of all its resources (a_j). This *list of prices* constitutes the whole set of information on the company required by financial market investors to properly value the business firm, that is, to assess the structure of future cash flows. In the rest of this paper, we note Φ the set or vector of relevant information required by investors to assess the fundamental value of the business firm.

The previous analysis clearly relies on restrictive assumptions and may be questioned from two different viewpoints. The first viewpoint refers to the efficiency of stock market with respect to the information set Φ, i.e. to the dynamics of stock price formation. Some investors may not be fully rational, as recognised by behavioural finance and cognitive psychology (Shleifer, 2000): either their preferences depart from the expected utility framework or their belief are subject to overconfidence, conservatism, irrational and exuberance. Even assuming the coexistence of rational and non-rational investors, limits to arbitrage (e.g. constraint on short-selling) may prevent an alignment of fundamental and market values (Barberis and Thaler, 2003). Moreover, when models of asset pricing with heterogeneous beliefs are used, then the identity of market price and fundamental value is no longer guaranteed (Stout, 2003). In sum, and whatever the reasons, some may question the ability of the market to provide efficient pricing, in the sense of the ECMH: market prices may not efficiently 'exploit' the

relevant information set Φ.

The second viewpoint, the one we shall insist on, disentangles the precise content of Φ, rather than its use by investors. While keeping the fundamental value perspective – the idea that investors are primarily interested by the ability of the firm to deliver future revenue – one should consider the (plausible) facts that the individual contributions of each resource cannot be clearly identified (problems occur at the level of equation 2), or that some resources may not be transacted on a competitive, liquid market (problems occur at the level of equation 3). In these cases, the relevant information set should encompass pieces of information that are not encapsulated or subsumed into a market price. As an example, the aptitude of the firm to deliver particular form of training to its workforce may be a relevant driver of performance, even though it does not have any available market pricing. Accordingly, investors should generally rely upon a set of available information that is partly endogenously generated by market dynamics (market-driven), and partly generated by other sources of information that are specific to the firm and its special economic environment. The whole set of relevant (decision useful) information Φ required by investors results from and is composed of two main subsets of information:

$$\Phi = (p_h ; x_k), h = 1, \ldots, l \text{ and } k = 1,\ldots , m \qquad (4)$$

where p_h is the subset of market-driven information, and x_k is the subset of non-market, firm-specific information.

1.2. The case of intangible resources

So called 'intangible' assets are a typical example of resources that usually do not meet the criteria of marketability, while being important driver of performance for contemporary business firms. Intangibles are non-physical (they lack any material support), non-financial (they do not provide any legally-enclosed revenue) and provide relevant future benefits (Kim, 2007). Generally speaking, the following expenditures are associated with the development and maintenance of such intangibles: (i) spending on information and communication technologies (hardware, telecommunication infrastructure and software); (ii) spending on Research and Development (R&D, scientific and non scientific) and patents; (iii) spending on development and maintenance of brands and trademarks; (iv) spending on workforce training in firm-specific capabilities and improvements in labor organization (total quality management, job rotation, just-in-time, team working, and so on).

The evidence strongly suggests that intangible resources are a crucial component of long-term performance. At the macro level, measurements on US data lead to the conclusion that, at the end of the 1990s and the beginning of the 2000s, private investment in intangibles roughly equaled investment in tangibles, representing around 10% of domestic output (Nakamura, 2003; Corrado, Hulten and Sichel, 2006). Corrado *et al* (2006) find that, for the period 1995-2003, intangibles accounted for 27% of the annual growth, a percentage equal to tangibles for the same period. At the micro level, countless studies have examined the role played by R&D (Griliches, 1994), new

technologies (Black and Lynch, 2001) or innovative organizational practices (Black and Lynch, 2001; Caroli and Van Reenen, 2001) on firm performance.

Overall, complementarities are shown to be pervasive in a business model driven by intangibles (see e.g. OECD, 2006). Complementarities occur when the combination of two different resources yields greater output than their separate use. When resource prices are held constant, this combination symmetrically reduces total costs. Empirical studies stress the joint contribution provided by intangibles that relate to workforce training, R&D and organizational innovation. In particular, regarding Information and Communication Technologies (ICT) and new work practices, Breshnahan, Brynjolfsson and Hitt (2002) observe that ICT have a stronger impact on productivity in firms that adopt decentralized labor organization at the same time. Moreover, regarding training and new work practices, different studies provide evidence of a correlation between training efforts and labor reorganization, suggesting that their joint combination does improve performance (see e.g. Lynch and Black, 1998). Last but not least, regarding training and R&D, further studies provide evidence that firms in key growth industries (high tech, life sciences, business services) tend to have a high ratio of R&D spending on sales, and firms that make the greatest investments in education and training of their workforce have above average productivity and financial performance (Lev 1999, pp.21-35; Bassi, Ludwig, McMurrer and Van Buren, 2000).

Because of such complementarities, and as Ijiri (1967, 58 ff.) claimed early on, intangibles do not fit the peculiar framework assumed by equations 2 and 3 regarding separability and marketability of individual contributions. And even though one intangible resource related to some support might be separately marketable (for example, a patent), its sale might also imply losing both all complementary and interdependent utilities embedded in its relations with other elements, and the overall contingent advantage which collectively renews the firm performance over time. Accordingly, proper information on intangible resources is not, most of the time, accessible through markets. Rather, it usually belongs to the subset of firm specific information.

Summing-up, in a world of complete (assuming one market per resource) and perfect (in the sense of fundamentally efficient) markets, the information set would be reduced to a list of prices. Then the certification provided by the Board merely consists in assessing the firm's collection of resources in line with external market prices. However, relaxing those assumptions, entity-specific information might be required by external stakeholders. Absent entity-specific accounting information, investors may make the most efficient use of the information set at their disposal (the market price formation being then informationally efficient), but such a set would be too narrow to provide a comprehensive basis for assessing the ability of the firm to perform revenue over time. This latter kind of information requires a business entity's *accounting system* constituted by enforced conventions, standards and rules that frame the reporting and disclosure processes. Therefore, the accounting system constitutes one of the cognitive prerequisites that enable investors to effectively play the stock exchange over time, leveling the market playing field by providing common knowledge on the business entity performance and position.

2. Public disclosure of information: the role of accounting

This section analyses the special role played by accounting in the disclosure of information (2.1.) and then insists on the specific case of intangibles (2.2.).

2.1. Market basis *versus* entity-specific basis for accounting

The distinction between the two subsets composing the information vector Φ is mirrored by accounting, which shows two main models or basis – a "market basis" and an "entity-specific basis" (IASB 2005). Those models primarily differ in the accounting methods used to measure resources (Anthony 2004, p.25).

Accounting for a resource on a market basis implies measuring it at its exchange price under competitive market conditions, reflecting the market's expectations as to the amounts, timing and uncertainty of future cash flows discounted at market rates of return for commensurate risk. Drawing upon equation 3 above, the market basis appreciates the market price or, absent it, a marking-to-model of this price, as the resultant of the whole set of future cash flows imputable to the resource j:

$$p_j = \sum_{t=1}^{\infty} \frac{{}^+r^e_{j,t} - {}^-r^e_{j,t}}{(1+i)^t} \qquad (5)$$

Where ${}^+r^e_t$ is the inflow at time t, ${}^-r^e_t$ is the outflow at time t, both flows being imputable to the resource j having a market price p_j, with i the discount rate of reference.

The market basis for accounting therefore applies a "stock method" (measurement on the basis of a discounted prevision of a stock of wealth). Although known as 'fair value' accounting, this stock method might be performed in two different ways. Either it is assumed that this measurement has been (efficiently) performed by a market: the market price is then used as a direct measure of the value, in line with 'marked to market'. Either this measurement is done by the firm, considering that no efficient pricing is directly accessible but might be mimic by relying on some assumptions on future cash flows and proper discount rates[7].

In contrast, accounting for a resource on an entity-specific basis refers to expectations and data from the reporting entity. When measuring for a resource, the entity-specific basis applies a "flow method" that recognizes past and present costs (rather than future revenue) coupled with conventions on the useful continuity of the underlying resource within the enduring economy of the firm. Contrary to the capital stock value approach, entity specific accounting does not conflate discounted future inflows, which are actually expected revenues, with current monetary exits that are actual costs.

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[7] The reliance of 'marked to model' on specific information and data, that the market is by definition unable to validate, questions whether this measurement technique really belongs to the market basis, rather than to the entity specific basis (REF).

Accordingly, the firm's overall capacity to generate incomes does not imply seeking some alleged capital stock value that is supposed to be at the origin of those incomes. Instead, assets are recognized as invested costs having continued (expected) utility in the future. So called "historical cost" accounting is a typical example of such a measurement basis, where resources are accounted for through the flow of monetary expenditures that have been disbursed to deal with them ($^{-}r_h$ related to a resource, with $h \subset (1,...,t)$). Contrary to the stock method, no legal or material support is required, since the resource (or the related business activity) has not to be marketable. Only the existence of imputable outflows and appropriate conventions apply.

Entity specific basis is not limited to the measurement of resource through so called 'historical' cost accounting, but also encompasses the broad set of qualitative statements, like narratives and classifications, aiming at providing firm specific information and/or forward looking information. This type of firm-specific, non quantitative information has grown rapidly over the last decades. For US listed companies, Gordon (2007) documents a large increase in the quantity of firm specific information delivered, in particular, through the Form 10-K, from about 75 pages in 1985 to 166 in 2004. Of particular interest is the growth of the 'Management's Discussion and Analysis' (MD&A), that should, according to the SEC (Securities Act Rel. n°6711, April 21 1987) "*focus specifically on material events and uncertainties known to management that would cause reported financial information not to be necessarily indicative of future operating results or of future financial conditions*". According to Gordon, average MD&A expanded from about 5 pages in 1985 to 24 in 2004. In France, entity specific basis for accounting is provided for by the *Rapport de gestion* (Business report), disclosed by listed companies since the "New Economic Regulation" (NER) Act of May 2001 (C. com. art. L. 225-102-1). This Rapport includes 'forward looking information' (through a document on the general situation of the company and its expected evolution) as well as a document detailing how social and environmental consequences of corporate activity are dealt with.

To conclude, by referring to expenditures done by the firm or qualitative information specific to it, the entity-specific basis for accounting clearly refers to the firm-specific subset of the Φ-vector, while the market basis for accounting refers to the market subset of information.

2.2. Accounting for intangibles

The regulatory treatment of intangible assets offers a conspicuous example of the consequences of these two accounting bases. A first possibility is to favor a market basis for the measurement of these resources: the international accounting standard for intangible assets (IAS38, §39) goes this way, linknig informational reliability to market-based estimates of value. Therefore, this accounting standard denies the asset recognition and measurement of a number of expenditures for resources that lack in proper market basis such as "*research activities aimed at obtaining new knowledge; search for, evaluation and final selection of, applications of research findings or other knowledge; search for alternatives for materials, devices, products, processes, systems or services; and the formulation, design, evaluation and final selection of possible*

alternatives for new or improved materials, devices, products, processes, systems or services" (IAS 38, §56). More generally, internally generated intangibles, such as XXXX, are not accounted for, even though "*entity's costing systems can often measure reliably the cost of generating an intangible asset internally, such as salary and other expenditure incurred*" (IAS 38, §62).[8]

As we argued, this choice to confine the accounting process to market basis methods is likely to involve investment decision-making based on an incomplete set of information, whenever intangible assets are important driver for future performance[9]. Then, the importance of intangibles paves the way to appreciating other accounting methods having an entity-specific basis. A pure historical cost accounting system, that may capitalize and amortize the expenditures (including deferred charges) linked to internally generated intangibles as depreciable assets, is a convenient way to perform this measurement. Evidence of this treatment might be found in previous accounting systems and regulations, for example the French ones. EXAMPLE

However, the accounting representation is not limited to financial figures (quantitative information), but also includes classifications and narrative explanations (qualitative information). An interesting case of such a system as applied to intangibles is provided by the French regulation on social reporting ("*bilan social*"), which requires big companies to disclose a conventionally standardized set of non-financial measures on workforce-related issues such as remuneration, training, and security at work. In addition, narrative information may be disclosed on these matters according to accepted principles of informational veracity. Another example is the voluntary disclosure devoted to environmental and social responsibility issues that is increasingly provided by companies worldwide, often in accordance with emerging frameworks of reference such as Global Reporting Initiative[10], and audited by specialized consulting firms.

In conclusion, improvements on cost accounting appear to be well suited for recognizing and accounting for intangibles while coping with the main goals of auditing and enforceability of public information disclosure. Intangibles may then be recognized and accounted for through capitalization of bundles of imputable monetary outflows (expenditures), supplementary systems of non-monetary measurements, and trustworthy

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[8] Other examples are provided by IAS38 – Intangible Assets, §6, ver. 1998 and IAS38 – Intangible Assets, §63-64.

[9] This point is fully acknowledged by the OECD (2006, p.7), who notes: "*traditional accounting has necessarily remained focused on tangible assets. Traditionally, the only intangible assets recognized 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. 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*".

[10] http://www.globalreporting.org/

disclosure of narrative information. This insider-related information may require special control setting to be disclosed and audited in a reliable and consistent way. In particular, and this is the crucial point, the certification of such measurement, information and representation necessarily require some firm-specific expertise by directors.

3. Board independence and firm-specific expertise: the trade-off

Under the "decision usefulness paradigm", the performance of the accounting process should be evaluated according to the degree of correspondence between required and disclosed information. Performance is then a function of the many rules framing the process (in particular the accounting standards), as well as of the actors ultimately in charge of certifying the proficient character of the whole process. Accordingly, companies' directors have a crucial role to play, to enhance the overall quality of financial and non-financial reporting (Cohen, Krishnamoorthy and Wright, 2004). In turn, this should improve the accuracy of financial decision-making by investors and shareholders.

As part of its monitoring role, including the validation of financial and non-financial reporting, an essential attribute for the board is the propensity of its members not to collude with corporate executives – that is to be "objective" (Boot and Macey, 2004). Of course, objectivity is ultimately a *subjective* disposition. Yet distant shareholders and other external stakeholders, as well as regulators, need to rely on clear-cut proxies. Accordingly, the basic idea common to a number of existing definitions of "independence" is to identify some *objective* criteria that minimize the conflict of interests between directors and corporate officers. Generally speaking, independence is compromised if the director of a company (*i*) is, or has been, a corporate executive of that company or of its affiliates, (*ii*) is, or has been, employed by that company or by its affiliates, (*iii*) is employed as an executive of another company where any of that company's executives sit on the board, (*iv*) is a large block-holder of that company, (*v*) has a significant business relationship with that company or its affiliates. On this basis, three types of directors are usually distinguished according to their relative degree of independence (Clarke, 2007). "Executive" or "inside" directors are corporate executives. "Affiliated" or "gray" directors are not executives, but they do not meet one of the previous criteria; this category encompasses in particular employees, long-term block-holders or investment bankers in relation with the company. Finally, "independent" directors are outsiders that fulfil the whole set of criteria.

As a general proposition, *de jure* independence is supposed to foster "objectivity", which in turn increases the probability to impose sanctions on imprudent or underperforming managers. Ferreira, Ferreira and Raposo (2008) therefore define independence as the probability for a CEO to be fired and replaced by the board, once the stock market (or the board itself) has discovered the CEO's poor performance. Considering certification, such a definition of independence makes sure that directors

will reject information that they believe to be biased or incomplete, and will make sure that appropriate market values have been used to evaluate corporate assets. To do so, financial and/or accounting expertise of course may help.

However, to consider that independence (even augmented with generic expertise in accounting and finance) is the sole attribute determining the quality of disclosure relies on the strong assumption that accounting information is purely market-driven. As argued *supra* (1.1), a non-negligible part of the relevant information vector is firm-specific (x_k) and the quality of this information is intrinsically related to the characteristics of the actors that produce and certify it. Put differently, accounting figures and values are not, most of the time, subject to validation through impartial evidence. This is especially true for narrative information dealing with intangibles (see *supra* 2.2), such as the notes to the financial statement, as well as for 'forward looking' information intending to identify factors that may impact firm's future performance and situation.

In all these cases, the economic usefulness of the certification of accounting information by the board depends on the ability of its members to actually understand the main features of the business model. And this cognitive aptitude is less related to a generic expertise in accounting and finance than to specific business skills (Lanfranconi and Robertson, 2002). When directors do not have any particular firm-specific expertise (and when the required information is firm-specific), then certification becomes purely formal. By contrast, this function acquires economic significance whenever the magnitude of such knowledge increases. To sum up, efficient, trustworthy certification requires both the willingness to refuse accreditation of biased or narrow reports, and the ability to discover and assess firm-specific information. As a consequence, the overall quality of control over the information disclosed by management increases with both independence of directors and their firm-specific expertise.

Yet while there is no reason to posit that generic expertise is negatively linked to *de jure* independence, things are different for firm-specific expertise. As the previous definition makes clear, the usual criteria applied to proxy independence tend to put a distance between the firm and its directors so as to minimize potential conflict of interests. In turn, this distance tends to reduce their ability to discover and understand firm-specific knowledge. By contrast, being part of the firm as a going concern (as do executives or non-executive employees) or being in close connection with it (as do investment bankers, or large block-holders, or representatives of main stakeholders) provides some noticeable advantage in appreciating and certifying firm-specific information based on inside knowledge of the business model. It is widely recognized that independent (outside) directors experience a cognitive disadvantage over non-independent (insider) directors (see e.g. Baysinger and Hoskisson, 1990, p.74; Klein, 1998, p. 278 ; Hillman and Dalziel, 2003 ; Osterloh and Frey, 2006). This disadvantage may, in some circumstances, undermine the global monitoring effectiveness of the board. For instance, appointing a pure independent director (an academic lawyer in corporate governance, for example) to the board of a listed bio-technology firm – a board that should certify the disclosed information on the way environmental consequences are dealt with, according to French law – is like appointing an economist to an academic

jury concerned with a doctoral defence in theological aesthetics. While the economist will surely be 'objective' (meaning impartial in the conflicts running across the theological aesthetics scholars community) one may seriously doubt of its ability to actually assess the overall quality of the candidate[11].

Summing-up, board independence offers decisive advantages in terms of control, but it also implies an opportunity cost by reducing the board's ability to cope with entity-specific information. Accordingly, a fundamental trade-off exists between *de jure* independence and firm-specific expertise that determines an optimal level of independence[12].

A simple economic model may help to capture the basic functioning of this trade-off. For sake of simplicity, let assume that each board member may be either a firm-specific expert (defined as *e*) or independent (defined as *i*). Normalizing the size of the board to one, we obtain (with *i* the relative share of independent board members):

$$i=1-e \in (0,1)$$

Furthermore, let assume that each world state of the firm is characterised by a given relative presence of intangible resources, that do not have a market basis of accounting and disclosure. This degree *k*, normalised to one, relates to the composition of the set of information Φ required by investors (and other firm's stakeholders) to properly make their decisions (see equation 4).

In this context, the total agency cost related to the board acting as certifier may be defined as

$$B(i,e,k) \equiv W(i,e) + D(i,k) + C(e,k) + M(e,k)$$

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[11] In a sense, this critic of *de jure* independence is at the very basis of the corporate governance model implemented through private equity/Leverage Buyout (LBO). The archetypal director in a private equity-controlled company is supposed to be strongly involved in the firm, thereby avoiding the detrimental effect of independence. The following words by a top executive of a Fortune 100 company vividly express this idea (see Cheffins et Armour, 2007, p.9): « *Do I want a board of people who are owners that want to make a business, or a group that acts like scared regulators? I'd much rather have a strong businessman on my board than a Harvard professor who is an expert on corporate governance who only wants to talk about process* ».

[12] Ferreira *et al* (2008) propose a model, where shareholders optimize on the level of independence. Like our argument, the main advantage of independence is to make sure that a 'bad' CEO will be fired. But the tradeoff they propose is different: in their model, there is a monetary cost supported by shareholders for independency (due to dispersed ownership in particular). Here, the cost of independence is non-monetary: it is the reduced ability of directors to acquire and certify firm-specific information. A further difference might be pinpointed: while the ability for the board to identify a bad CEO is exogenous in their model, our analysis suggests that this ability is endogenous. In particular, it is decreasing with the level of *de jure* independence.

Or, equivalently,

$$B(i,k) \equiv W(i,1\text{-}i) + D(i,k) + C(1\text{-}i,k) + M(1\text{-}i,k)$$

In particular:

- $W(i,e)$ is the fixed cost of the Board related to the remunerations (w_i, w_e) paid to its members (i, e). Its derivative is increasing (or null) in i when the independent member remuneration is higher than the expert member remuneration ($W_i \geq 0$ iff $w_i \geq w_e$), and decreasing in i otherwise ($W_i < 0$ iff $w_i < w_e$). Analytically, a generic function denotes this cost as follows:

$$W(i,e) = w_i * i + w_e * e$$

   where W_i, $W_e > 0$.

- $D(i,k)$ is the ignorance cost of the Board relative to its level of independence. It arises because the independent board lacks in the ability to discover, understand and certify relevant non-market, entity-specific information (k). According to the previous discussion, higher is the level of k, for a given level of i, lower is the ability of the board to understand, and consequently check, the management behaviour (analytically, the derivative is then increasing in k: $D_k > 0$); and higher is the level of independence of the Board (i), lower is the ability of the board to understand a given k (analytically, the derivative is increasing in i: $D_i > 0$). Furthermore, let assume: $D(i,0) = 0$ (i.e. if there are not entity-specific information, then no ignorance cost will arise for any i, because there is nothing to discover); and $D(0,k) = 0$ (i.e. if the Board comprises only experts, then, by definition, no ignorance cost will arise for any k, because they operate inside the firm and access all relevant information). Analytically, this cost may be described as follows:

$$D(i,k) = d *(i * k)$$

   where $d > 0$ and D_i, $D_k > 0$.

- $C(e,k)$ is the perking cost of the Board relative to its level of entity-specific expertise. It arises because specific expertise implies appointing board members who are "insiders" and may then collude with management more easily than independent members. It is possible to rewrite this function as $C(1-i,k)$. Its derivative is decreasing in i: $C_i < 0$ (i.e. higher i, lower e and consequently lower the perking cost), and increasing in k: $C_k > 0$ (i.e. higher k, higher the level of hidden knowledge and consequently higher perking cost). Furthermore, let assume: $C(e,0) = 0$ (i.e. if there are no entity-specific information, then no perking cost arises for any e, because there is no knowledge to hidden); and $C(0,k) = 0$ (i.e. if the board comprises only independent members, then, by definition, no perking cost arises for any k). Analytically, this cost may be described as follows:

$$C(e,k) = c * (e * k)$$

where $c > 0$ and C_e, $C_k > 0$.

- $M(e,k)$ is the monitoring supplemental cost of the Board relative to its independence. It arises because an independent board needs to hire professional consultants and auditors to understand k and thus be able to control. According to the previous discussion, higher is k, higher is the cumulated cost of these external expertises required to cope with k (analytically, the derivative respect k is positive: $M_k > 0$). Furthermore, higher is the quota of expert membership of the board (e), lower is the monitoring cost (i.e. the derivative respect e is negative: $M_e < 0$). It is possible rewrite this function as $M(1-i,k)$. Its derivative is increasing in i: $M_i > 0$. Moreover, let assume that $k \geq e$, that is, the level of knowledge of the board is always lower than or equal to the relative weight of entity-specific information in the firm (in particular, when $k = e$, then $M(e,k) = 0$). This means that hiring outside experts surrogates the internal presence of specific expertise into the Board, and constitutes the opportunity cost of maintaining high levels of independence (i) relative to the level of entity-specific knowledge (k) pertaining to the situation of the business firm. Analytically, this cost is described as follows:

$$M(e,k) = m/2 * (k - e)^2$$

Where $k \geq e$, $m > 0$ and $M_k > 0$, $M_e < 0$.

Accordingly, the total agency cost of the Board may be described as follows:

$$B(i,k) = (w_i - w_e) * i + w_e + (d - c) * (i * k) + c * k + m/2 * (k - 1 + i)^2$$

The efficient performance of control by the Board requires to minimize this total cost $B(i,e,k)$ for each level of entity-specific information (k). Figure 1 comprises two graphs:

graph 1 denotes the cost curve for each level of k; graph 2 denotes the corresponding locus of optimal values for $(i,k)^*$.[13]

*** Insert Figure 1 here ***

In the graph (1), the y-axis represents the total cost $B(i,k)$ and the x-axis the level of independence of the board (i). Each curve identifies the value of $B(i,k=given)$ and shows how such cost changes for each level of i when k is given. When k increases the cost function $B(i,k)$ is identified by escalating curves.

For a given level of entity-specific information (k), it is possible to identify an optimal level of board independence that minimizes the cost function $B(i,k)$. Since higher k implies descending cost curves, then the optimal level of i, given by $B_i(i,k^*)=0$, is a decreasing function of k. This decreasing function identifies the trade off between entity-specific information (k) and board independence (i). It corresponds to the function $B_i(i,k)=0$ denoting each optimal level of (i,k) which minimizes the cost function $B(i,k)$. Solving the minimization of the cost function $B(i,e,k)$ for each value of k, we obtain the i-k trade-off function:

$$i = 1 - \frac{(w_i - w_e) + (d - c + m)k}{m}$$

This means that, higher is the entity-specific information (k), lower is the optimal level of independence of the board (i). Our analysis then predicts that the optimal proportion of (*de jure*) independent board members for a firm is decreasing with the importance of intangible resources in corporate performance. This relation between k and i depends on parameters. In particular, following economic common sense, the optimal level of independence of the board is lower when:
- w_i is higher then w_e (this may happen when the remuneration of independent members is higher than the remuneration of internal expert members because these last ones are just employers of the firms);
- d is higher than c (i.e. the ignorance cost is higher than the perking cost);
- m is higher (i.e. higher monitoring cost, higher cost to hire external experts).

Graph (2) shows the i-k trade off function. When the degree of intangible resources (k) is zero, the optimal level of board independence (i) is one: all members of the Board should be independent. Furthermore, $i = 1$ implies $e = 0$ and thus null perking cost. Finally, $k = 0$ implies that there is no specific information to discover, and thus no consulting and auditing cost: the ignorance cost is null. When k increases, for example when the management of the firm develops innovative practices, products or technologies, the relevant level of entity-specific information increases, and a full independent board ($i=1$) is no longer capable to discover and properly certify the new level of information (k) alone. A trade off between i and k arises. If the composition of the board does not change, the agency cost will increase because k is higher. From one

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[13] This graph represent a simulation of the model when $w_i = w_e = 1, m = 4, d = 2, c = 3$. Different assumptions of the parameters will not change the main results.

side, the ignorance cost increases ($D_k>0$); from the other side, the independent board has to hire professional experts to compensate its ignorance in entity-specific information k ($M_i = - M_e > 0$). More k increases, higher is the incurred cost to maintain a full independent board. At some point k_0 (depending on parameters), a full independent Board becomes inefficient: for each $k > k_0$ the minimization of cost implies that some independent members of the board should be substituted by expert members. This new composition of the board implies lower monitoring costs (expert members better understand the entity-specific information), even though this increases the likelihood of supplemental perking cost (which increases in e: $C_e > 0$).

Generally speaking, the trade-off implies an optimal composition of the Board comprising a mix of expert and independent members. The optimal share depends on the changing characteristics of industry and business (captured by parameters). Beyond some level of independence, further increases may then undermine the overall ability of the board to perform an effective control on the business firm. As such, "excessive" independence may have adverse consequences and ultimately damage the performance of the firm, thereby supporting the disappointing results of the empirical literature (see e.g. Bhagat, Bolton and Romano, 2008). This argument also provides some support to the emergent critique of the independence "vogue", as championed by Roberts, McNulty and Stiles (2005), the main contributors to the Higgs Report that led the revision in November 2003 of the British Combined Code: "*the advocacy by institutional investors, policy advisors and the business media for greater non-executive independence may be too crude or even counter-productive*" (p. S19).

The high-profile corporate scandals such as Enron and Lehman Brothers may illustrate this trade-off by offering striking examples of the limits of (*de jure*) independence in terms of of control. Enron had 'supermajority' board (just like WorldCom), with more than 80% of independent members. In addition, "*The Subcommittee* [of the US Senate in charge of a Report on 'The role of the board of directors in Enron's collapse'] *interviews found the Directors to have a wealth of sophisticated business and investment experience and considerable expertise in accounting, derivatives, and structured finance*" (p.8). Those qualifications did not prevent a major (to say the least) failure of monitoring. The reaction of the board in the 'Raptor' operations, that precipitated Enron's fall, is suggestive. Informed of all these operations by Andrew Fastow, the Chief Financial Officer, Norman Blake, Chairman of the board, suggested to file 'a patent' on the accounting techniques used (p.21, note 47). Later, he qualified the Raptor operations as 'leading hedge accounting' in his hearing with the Senate committee (p.20). This lack of understanding of what was going on inside the firm by independent non-executive board members might be contrasted with the reaction of one employee, Sherron Watkins – vice president of corporate development. As an insider, she was aware of the extent of fraudulent behaviour. However, she did not have any formal right to express her concerns publicly. Fearing for her job, she decided to write an anonymous letter to the CEO Kenneth Lay, concluding: '*We're such a crooked company*'. True, the independence requirements were strengthened by the Sarbanes-Oxley Act, considering that part of the Enron's collapse originates in the existence of financial ties between the company and its directors. Yet this change did not fix the

problem: *de jure* independent board member, even expert in accounting and finance, might be intrinsically unable to grasp the key factors driving the firm's revenue.

The bankruptcy of Lehman Brothers, in the wake of the 2008 sub-prime mortgage crisis, provides another example. Once more, the investment bank had a super-majority board, that fits with Sarbanes Oxley provisions. A closer look at the board's composition however makes one perplex (Minow, 2008): one director was a theater producer, one a retired US Navy admiral, one the former CEO of Sotheby and of the National Trust for Historic Preservation and, up until 2006, one was a former Hollywood Actress. Of course, one may question the ability of those independent agents to monitor a business model increasingly based on financial innovation driven by massive securitization and derivatives trading.

4. Conclusion

This article has dealt with the quality of financial reporting as a crucial component of corporate control and accountability. The role of the board of directors has been primarily investigated. We have shown that firm-specific expertise may be an important attribute for directors when the relevant information set for investors and shareholders encompasses so called 'entity-specific' information. It is especially the case whenever intangible are significant performance-drivers, such as in high-tech industries. Yet we argued that this kind of expertise trades-off with *de jure* independence that is commonly advocated by institutional investors and regulators. Hence, more (*de jure*) independence is not always desirable: there exists an optimal proportion of independent board members that decreases with the importance of intangible resources. In sum, our analysis points to the attractiveness of pluralistic board appointments, composed of (*de jure*) independent members, corporate executives, affiliated members and representatives of other stakeholders having specific knowledge of the business affairs. By contrast, and except in situations where business performance and situation originate from a simple set of separable tangible resources, our analysis cautions against 'super' or 'full majority' boards.

To conclude, we may note that (non executive) employee representatives denote some attractive attributes to enhance corporate control. On the one hand, they have long term relationships with the firm as a going concern, while their interests rest distinct from those of the executive managerial team. On the other hand, workforce training in firm-specific capabilities and labor organization are main components of intangibles (see Corrado *et al*, 2006). The inclusion of employee representatives on the board may then enhance its ability to cope with firm-specific information and intangible drivers of performance. This point is supported by empirical evidence provided by Fauver and Fuerst (2006). They show that the inclusion of worker representatives in the (supervisory) board of German firms is positively correlated (up to a certain point) with the performance of those firms. In turn, this argues for a corporate governance model integrating codetermination, such as it is the case in almost half of the E.U. member states (namely Austria, Czech Republic, Denmark, Finland, Germany, Hungary, Luxembourg, the Netherlands, Romania, Slovak Republic, Slovenia and Sweden).

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Figure 1 – The Board cost and the trade-off between independence and entity-specific expertise