The Governance of Intangibles: Rethinking Financial Reporting and the Board of Directors

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Abstract

This paper develops a theoretical analysis of performance measurement systems (including related accounting standards) and the composition of the Board in the context of business models driven by complementarities, innovation and intangibles. Performance management systems frame and shape the representation of business performance and risk, while the composition of the Board is designed to control and govern the business processes and disclosure of information over time. Complementarities, intangibles and innovation exacerbate the information asymmetry that characterizes the specific economy of the business firm, making it different from external markets. Therefore, firm-specific information becomes as important as market prices to gauge the past and future performance and risk of the ongoing business firm. Specific knowledge of the firm is therefore required to disclose relevant and reliable information and to monitor corporate executives. This argues for the role of improved historical cost accounting systems coupled with non-independent, proficient Board members.

JEL Classification: G30, M41, D80

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INTRODUCTION

Business models and practices driven by complementarities, innovation and intangible resources exacerbate the well-known informational asymmetry that makes the economy of the business firm *specific* and different from external markets of reference. Firm-specific information has become as important as market prices in gauging the business firm's past and future performance and risk over time because the specific economy of the firm is driven by complementarities, intangibles and innovation. Specific knowledge of the firm is therefore required to both disclose relevant and reliable information and monitor corporate executives.

The aim of this paper is to develop a theoretical analysis of the firm-specific relationship between performance measurement systems (including related accounting standards) and corporate governance systems in the context of business models driven by complementarities, innovation and intangibles. While performance measurement systems frame the representation of business performance and risk of the firm, corporate governance systems are expected to control and govern the business processes over time, especially processes relating to the disclosure of information to alleviate information asymmetry. We believe both systems need to be upgraded to cope with the specific economy of the business firm, which cannot be understood from a market perspective. Investors are then confronted with capital markets from one side and the congeries of the business firm from another side. To address these unmet needs, accounting and governance systems need to be able to account for the specific economy of the business firm, which is shaped by complementarities, innovation and intangibles.

The accounting problem with intangibles

The professional and popular press has joined the academic literature in arguing that the existing systems of accounting and reporting are inadequate to deal with business models that are driven by innovation and intangibles. Critics claim that the accounting and reporting systems currently in place were developed for an economy based on the production, trade and consumption of physical goods, and they argue that the old systems are not suitable for a changing economy where services predominate and depend on intangible experience, technologies and ideas. At the same time, however, many recognize the puzzling problem of providing reliable and relevant information about this intangible dimension of the economy of

the business firm. Its resource base depends on special skills, trail-blazing innovations and technologies, changing organizational structures and capabilities, control processes, brand identities, mailing lists and databases, and the networks of social, professional and business relationships that make the firm economy possible (Blair and Wallman, 2001; OCDE, 2006).

Financial accounting and reporting provides a formal representation that summarizes the firm's activities (which are inherently complex and unfolding) in a snapshot frame of reported figures and narrative statements. This representation draws on a set of techniques developed to cope with resources, transactions, operations and events related to ongoing business activities, and regulated by professional rules and accounting standards. There is disagreement among prominent accounting standard-setting bodies worldwide about how to account for intangibles (Stolowy and Jeny-Cazavan, 2001; Zéghak and Maaloul 2011). Regarding R&D expenditures, for example, U.S. accounting standards (specifically the standards promulgated by the Financial Accounting Standards Board [FASB]) and International Financial Reporting Standards (IFRS, promulgated by the International Accounting Standards Board [IASB])[1] adopt a market basis and require that research should be expensed and that development costs should be capitalized as assets only if they meet the restrictive criteria of marketability. In particular, the application of IFRS has forced some countries, including France, to restrict the number of intangibles that are recognized as assets on corporate balance sheets (Biondi, 2004). By contrast, the Japanese accounting regulatory body adopts a different basis and permits expenditures for research, development and a number of internally generated intangibles (i.e., intangible resources that were not purchased through a market transaction) to be capitalized as assets in some circumstances.[2]

According to OECD (2006: 7), "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

[1] References are made to the American Standard n° FAS 142 and to the International Standard n° IAS 38. Regarding international accounting convergence, see Biondi and Suzuki, eds. (2007).

[2] In particular, expenditures for the adoption of new technology or a new management organization for resource development or for development of a new market can be recognized as deferred assets. Expenditures for software development may be capitalized in some cases.

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."

The governance problem with Board member independence

In the wake of corporate governance scandals, stringent corporate governance regulations were issued, such as the Sarbanes-Oxley Act, EU Company Law Directives, and numerous national corporate governance codes (Aguilera and Cuervo-Cazurra, 2004; Enrione et al., 2006; Sheridan et al., 2006). These corporate-governance reform initiatives address and refine various issues, including the rights and duties of shareholders, the importance of financial transparency and risk management, and the fiduciary role of auditors, among others.

Furthermore, the role and composition of the Board of directors for listed companies remains a major concern for corporate governance practices (Baysinger and Hoskisson 1990; Klein 1998; Osterloh and Frey 2006). The Board is usually charged with ultimate ratification power over major business events and control of the business firm. This controlling function entails the reporting of financial information through financial reporting and monitoring of the corporate executives, including the ultimate power to dismiss the CEO. Shareholder activists, (e.g., public pension fund managers) as well as advocates of shareholder primacy, have been clamoring for "independence" as the central requisite for directors, and this claim has been increasingly adopted as a voluntary or compulsory rule by several regulations and codes. In principle, independence is a moral quality and personal attitude by Board members that aids them in avoiding any collusion or conflict of interest. Independence substantively means that the Board member should be capable of skepticism and should have the courage to question executive decisions. However, governance rules and regulations define independence according to certain formal and enforceable characteristics of the relationship between Board members and the firm. This "*de jure* independence" differs from the substantive meaning of the term because it has been defined by regulations, governance codes and corporate statutes primarily in terms of formal requirements [or proxies] that actually place the director at a distance from the ongoing business activity. Therefore, "de jure" independence conflates "independence" with having been outside of the business firm and having had no connection to it for a period of time (or forever).

Parallel to their disciplinary role, scholars have recognized that Board members can positively contribute to corporate decision making by providing advice and counseling to executive management (Huse, 2005; 2007; Zahra and Pearce, 1989). These two roles appear to be in conflict with one another because the Board's disciplinary role is understood to require "de jure" Board independence (which is preserved by maintaining a distance and focusing on the prevention of managerial opportunism), while the Board's expertise role requires closeness and collaboration between directors and executives and a common focus on the development and performance of the enterprise over time (Forbes and Milliken, 1999; Hamel et al., 1998; Sundaramurthy and Lewis, 2003). Despite the apparent tension between the disciplinary and expertise roles of directors, however, the impact of the "de jure" independence of the Board on its disciplinary function, and on the specific role on non-independent, non-executive directors, has remained essentially unaddressed.

The need to upgrade the accounting and governance systems

To summarize, the current state of corporate governance and reporting is criticized as being hobbled by an out-of-date accounting system, but the impact of "de jure" independence of the Board on its monitoring function remains unaddressed from a business and economic context that is dominated by complementarities, innovation and intangibles. The aim of this paper is to develop the theoretical analysis of financial reporting and corporate control to better understand the congeries of the business firm that result from complementarities, innovation and intangible resources. Our approach deals with the problems raised by this inner dimension of the business firm, whose economic environment is assumed to be fundamentally different from the market environment. Accordingly, intangible resources are assumed to be connected to the special economy of the business firm over time. In other words, they are "firm-specific." The economic analysis of the business firm is thus recommended as starting point for a comprehensive analysis of intangibles and their implications for financial reporting and corporate governance. In particular, intangibles relate to the action of firm-specific complementarities and other organizational drivers of business performance and risk that the mainstream analyses, which is centered on capital markets, neglects. From a representational viewpoint, these firm-specific features point to the role played by non-market (firm-specific) information based on specific knowledge of the business firm. To cope with the firm-specific information that is necessary to account for intangible resources, there is a need to upgrade both financial reporting and the Board of directors. Financial reporting and the Board of directors both need to be able to cope with the special

economy of the business firm, rather than grappling to replicate a market environment that is not at all consistent with that special economy. In relation to accounting, the main alternative to the market-basis approach is the entity-specific basis and, particularly, what is known as historical cost accounting model. In relation to corporate governance, we emphasize the benefits that can be provided by directors who have firm-specific expertise in an alternative approach that is arguably better than directors who maintain "de jure" independence, as it is actually defined in the theory and practice of corporate governance.

The rest of the paper is organized as follows. The first section describes the theoretical advances and the empirical evidence concerning intangible drivers of business performance. In particular, these advances stress the material impact of intangibles that involve complementarities, although they lack appropriate market prices of reference or strong property rights. Accordingly, a market basis is insufficient to control this business economy. Instead, effective governance requires firm-specific information to be reported and requires the input of Board members who are proficient in dealing with the firm-specific situation. The following two sections deal with this upgrade; the first from an accounting viewpoint, and the next from the perspective of the role and the composition of the Board. The last section develops the theoretical and policy implications of this upgraded framework of analysis for theoretical modelling and related empirical tests, comprehensive firm-specific financial reporting and disclosure, and the efficient composition of the Board of Directors.

INTANGIBLES AND THE SPECIFIC ECONOMY OF THE BUSINESS FIRM

Intangible resources as drivers of business performance and risk

The importance of intangible drivers of business performance and risk of the firm is now widely recognized. Intangibles have been the object of growing interest among scholars for the last two decades. Macroeconomists increasingly recognize that growth depends as much on the contribution of intangible resources as on tangible resources. In microeconomics, it is now widely recognized that successful business models primarily involve investments in intangible, knowledge-based, resources (Foray, 2004; Alcaniz et al., 2011). Various definitions of intangibles are reviewed from various perspectives by Kaufmann and Schneider (2004), Choong (2008), and Zeghal and Maaloul (2011). These definitions appear to share at least one common point: They all insist that intangibles lack clear-cut marketability, they are often not physical or legal objects (i.e., they lack any material or legal form), and they are not

financial assets (i.e., they do not provide any legally enforceable revenue stream), but they can provide substantial future benefits (Zambon and Marzo, 2007; Kim 2007). Accordingly, intangibles appear to be related to the congeries of the specific economy of the business firm over time. Intangibles are therefore firm-specific resources. Their usefulness depends on the action of firm-specific complementarities and other organizational drivers of performance and risk, which are neglected by the mainstream analysis that focuses on capital markets. In particular, the development and maintenance of intangible resources in the firm is nurtured by the flow of specific expenditures, such as (i) spending on information and communication technologies; (ii) spending on innovation processes and research and development (i.e., scientific and non-scientific R&D) for trade secrets or technology that can be patented; (iii) spending on the development and maintenance of brands and trademarks (e.g., advertising); and (iv) spending on workforce training for improvements in labor organization (e.g., total quality management, job rotation, just-in-time processes, team working, and so forth) and for firm-specific capabilities.

At the *macro* level, studies based on U.S. data led to the conclusion that private investment in intangibles at the end of the 1990s and the beginning of the 2000s was approximately equal to investment in tangibles and that the volume of such investments amounted to approximately 10% of the domestic output (Nakamura, 2003; Corrado, Hulten and Sichel, 2006). Corrado *et al.* (2006) also estimate that investments that were made to enhance human resources (e.g., training related to labor organization including strategic planning) accounted for one-third of the total investment in intangibles.

Furthermore, the economic analysis of growth seeks to allocate the growth rate of labor productivity to the weighted rates of productivity for all inputs (tangibles and intangibles) plus a residual called "multifactor productivity." (Multifactor productivity is usually understood to be a measure of technological progress). Corrado *et al.* (2006: table 5) find that, for the period 1995-2003, intangibles accounted for 27% of the total annual rate of growth, which was equal to the percentage attributable to tangibles in the same period. Once again, the contribution of training and organizational structure and innovation were found to be substantial (approximately one-third of this 27%). In addition, intangibles may contribute to technological progress (i.e., the growth of multifactor productivity), in accordance with the thesis of the 'new economy' literature which argues that growth is driven primarily byintangibles and especially by knowledge-intensive factors (Oliner and Sichel, 2000; Jorgenson and Stiroh, 2000).

At the *micro* level, countless studies have examined the effect of 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. Most of these studies note the positive impact of the expenditures for intangible resources that contribute to the specific "competencies" that enable firms to develop and maintain their core capabilities and their competitive advantages over time vis-à-vis their main competitors through time. Once again, the evidence strongly suggests that intangible resources are a crucial component of long-term business sustainability.

Intangibles and the theory of the firm

The theory of the firm complements the empirical analysis of intangibles by providing certain insights into an intangible-driven business model. As noted previously, intangibles are assumed in our approach to be connected to the specific economy of the business firm over time. Intangibles involve then specific managerial actions and the very nature (and existence) of the business firm as a specific economic environment that cannot be replicated by external market transactions. Intangibles, in this conceptual framework, are embedded in the processes of the firm and cannot be simply purchased with consultants or outsourcing. Intangibles depend on firm-specific complementarities, and their significance is linked to organizational drivers of performance and firm-specific risks that are neglected in the mainstream analysis that is based on capital markets. These complementarities have been found in virtually all firms (Antonelli, 2001; OECD, 2006). Complementarities occur when the combination of two different inputs (or resources) yields a greater output than what could be obtained with the inputs separately. When input remunerations are held constant, this combination symmetrically reduces total costs. In a seminal article, Alchian and Demsetz (1972) stressed the importance of complementarities in the joint efforts of workers. In a situation involving 'team production,' overall output is greater than the sum of individual contributions. Formally, this means that the production function is non-separable (i.e., super-additive). Conditions favorable for team production are likely to arise in a knowledge-intensive business model (Antonelli, 2001). This is because knowledge is typically an indivisible resource, but it is often fragmented and dispersed over a vast array of agents, contexts and applications. Complementarities among agents may, therefore, arise from efficiently organized combinations of these fragments of knowledge. The joint production of two or more (knowledge-intensive) outputs within the same firm may decrease total costs or increase the

total benefits compared with a situation where the production processes are strictly separated or occur in two or more distinct organizations.

Complementarities include, but are not restricted to, the joint efforts of workers. Complementarities may also be generated by other types of intangible resources. Empirical studies stress the joint contribution provided by intangibles that relate to workforce training, R&D and organizational innovation. Breshnahan, Brynjolfsson and Hitt (2002) observe that information and communication technologies (ICT) have a stronger impact on productivity in firms that also adopt decentralized labor organization at the same time. Regarding training and new work practices, various studies provide evidence of a correlation between training efforts and labor reorganization, which suggest that the combination of these two practices does improve performance (see Lynch and Black, 1998, for the USA and Zamora, 2006, for France).

In sum, the economy of the business firm involves intangible resources that relate to idiosyncratic productive processes specific to each firm. Intangibles contribute to define the firm as a specific economic environment (i.e., a firm-specific environment) that is different and not replicable by the market. This stream of theory and evidence provides the reason why intangible resources generally lack any material or legal support and do not have a definite market price. Because intangibles are related to the specific processes within a firm, they are often 'immaterial' and cannot be easily protected by clear-cut property rights.

Furthermore, the particular characteristics that resources would have to have for being possible to identify them and assess their value on a market basis of accounting often do not correspond to intangibles, because intangibles depend on productive processes that are laden with complementarities. As Ijiri (1967: 58 ff.) claimed decades ago, intangibles and other firm-specific resources and processes do not fit the peculiar framework, which is based on the assumptions of separability and marketability of the individual contributions of each resource to the overall economy of the firm. Intangibles critically depend on synergies and complementarities that are firm-specific, contingent and conditioned on special circumstances that evolve over time. They differ from other tangible and financial resources that are under control of business management. The market basis approach in accounting is no longer the preferable way of accounting for these resources. Accountability for the related investments should include the actual expenditures and deliberate initiatives in which management has been investing to position the business firm over time to leverage special circumstances on its behalf. Those expenditures and initiatives can be made accountable using an entity-specific basis of accounting (Biondi 2011).

The economic consequences of intangibles and complementarities

Intangible resources and firm-specific complementarities are fundamentally connected, and they together define the specific economy of the business firm over time. Both the performance and the risks generated in the specific economy of the firm are related to intangible resources and firm-specific complementarities in the long run. The economic consequences of intangible resources and firm-specific complementarities are far-reaching, as Alchian and Demsetz (1972) and Ijiri (1967) recognized in their trail-blazing work. In this context, it is impossible to deduce the value of individual contributions from observations of the joint output (i.e., from [ex post] observations of the performance of the overall activity). Because the inputs in a joint production process are non-separable and super-additive, the marginal productivity of one input depends on other inputs. Therefore, every production process involving complementarities among resources raises specific problems of measurement, observation and control. In particular, according to Alchian and Demsetz, the monitoring of individual contributions requires direct inside observation of individual behaviors. This observation obviously implies a particular position "inside" the business firm, which is an on-going concern and a productive entity. Accordingly, Ijiri suggests improving on corporate performance measurement systems to better represent and control business performance and dynamics. Alchian and Demsetz further suggest appointing a supervisor within the firm (i.e., a member of the team) who can monitor individual contributions from the inside. In their model, this monitoring is easier if it is done by an agent who is proficient in labor organization and in the ongoing production processes of the firm. Following this reasoning, we speculate that insiders who are near to the special economic processes of the firm are in the best position to discover, develop and maintain specific knowledge about the very origin of the firm's financial performance and risk.

CORPORATE GOVERNANCE AND THE PROCESS OF DISCLOSURE

The Board of Directors is the main institutional device required by corporate governance for supervising and monitoring the specific economy of the business firm, which is characterized by asymmetry between the inside and the outside the firm. In fact, the usual agency theory approach, which is based on ownership and external markets, appears to be at odds with business models that rely on intangibles whose ownership and market values, if they exist at all, are blurred. At the same time, old and new corporate scandals and

shortcomings reveal the dark side of every business firm, which is based on an entrepreneurial core and intangible resources. This non-market (firm-specific) core makes the firm particularly difficult to monitor so a dynamic institutional approach would appear to be necessary to understand the congeries of the business firm over time (Biondi et al., eds. 2007; Biondi, ed. 2009). In particular, the changing economy of the business firm involves a process of "creative destruction" (Schumpeter) that may turn out to be inefficiently disruptive relative to the old run (Pantaleoni). For the efficient performance of this innovation process, it is necessary to discover and exploit information that is firm-specific, relevant, and reliable. Obtaining this information requires critical monitoring on new developments that are being created and implemented, and old technologies or procedures that should be amended and eventually destroyed. In a nutshell, innovation and intangibles exacerbate the asymmetry between insiders and outsiders, which is actually the evergreen issue of corporate governance and control.

The discovery and reporting of information about intangible drivers of the economy of the firm is, therefore, essential for efficient corporate governance and control. The Board of Directors is expected to supervise the process of reporting and disclosure even in the presence of overwhelming intangibles and innovation. In particular, the Board recommends the external auditor(s) to shareholders, and manages the relationships among the external auditors, the internal auditors, and the management of the firm. In addition, in almost all jurisdictions, the Board should certify the financial statements and other public disclosure. By thus facilitating the regular release of unbiased accounting information by managers to individuals or organizations who hold a stake in the business firm (including shareholders), the Board can help to alleviate the agency problem and costs by reducing the information asymmetry between insiders and outsiders (Verrecchia 2001; Bushman and Smith 2001).

In presence of complementarities, intangibles and innovation, special attention must be paid to firm-specific information. In the most general case, investors and other external stakeholders rely on a bundle of available information that is partly generated by the price system (market-driven) and partly generated from other sources of information that are specific to the special economic environment of the business firm (firm-specific). The accounting system appears to be the main device for producing (and eventually disclosing) this non-market, entity-specific information. Therefore, accounting constitutes one of the representational prerequisites that enable share-exchange participants to effectively participate in the share-exchange over time (Sunder, 2001). The information vector available to market participants arises either exogenously (from the market) through accounting disclosure or

endogenously through market trades and price signals. Therefore, in addition to the information that is contained in market prices, accounting information relating to entity-specific expectations and entity-specific data that has been produced in accordance with institutional frameworks distinct from the market and regarding conditions "inside" the firm. This accounting information may then play an important role in facilitating the formation of share market prices over time (Biondi, 2003; Biondi and Giannoccolo, 2010; Biondi 2011).

THE ACCOUNTING STRUCTURE OF THE BUSINESS FIRM

The crucial distinction between the two subsets of information disclosed to investors and the public is mirrored by the accounting structure of the business firm, which implies that the basis of accounting can be grounded on either of two different approaches: "fair value" and "historical cost" (Anthony, 2004: 25; IASB, 2005; Littleton 1953; Terrill 1955).[3] The fair value accounting adopts a market reference ("market basis"), while the historical cost accounting focuses on the business environment specific to the firm ("entity-specific basis"). A discussion paper by the international accounting standard-setting body, IASB (2005), deals with these two alternative bases of financial accounting. From an accounting perspective, measuring an asset on a market basis implies determining its carrying amount at its exchange price under competitive market conditions. This approach reflects the market's expectations regarding the amount, timing and uncertainty of future cash flows discounted at market rates of return for the commensurate risk. This basis is associated with fair value accounting systems and the related "stock method" for accounting measurement. In contrast, accounting for an asset on an entity-specific basis refers to expectations and data from the reporting entity, which may differ significantly from the information implicit in a market price. According to IASB (2005: 8), any measure of an asset that differs from its market value must be based, explicitly or implicitly, on entity-specific expectations and data. This basis is associated with historical cost accounting systems and the related "flow method".

The distinction between the two bases of asset measurement highlights two kinds of information: one kind (market basis) refers to the market subset of the information vector

[3] Paton (1946) and Littleton (1953) made different choices on the matter. Paton argued that "*cost* (…) *is important as a measure of the value of what is acquired*" (p. 193b), while Littleton spoke about "*an unending clash of the idea of value and the idea of cost*" (p. 10b). cf. also Paton (1980) – commented by Ijiri (1980) – on his preference for (fair) value basis.

while the other kind (entity-specific basis) refers to information that cannot, for various reasons, be delivered through market pricing.

The market basis refers to market quotations and requires applying the "stock method," which is based on discounted values of marketable resources. This accounting basis recognizes the market price or, if the market price is absent, a marking-to-model estimate of it, as the outcome of the whole set of future cash flows imputable to the resource at time $t=n$:

$$p_j = \sum_{t=n+1}^{\infty} \frac{{}^{+e}r_{j,t} - {}^{-e}r_{j,t}}{(1+i)^t} \quad (1)$$

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, and the related "stock method" which is presented in equation 1, requires a high level of cognitive background and an ability to deal with subjective references to (virtual) future cash flows based on unreliable and changing discount rates that are scarcely enforceable or auditable. In contrast, the entity-specific basis and the related cost accounting approach avoid these references because they do not account for stock *values*. They have recourse to the "flow method" that recognizes actual *costs* coupled with conventions on the useful continuity of the underlying resource (or activity) within the enduring economy of the whole firm. The accounting method used to determine the carrying amount of assets is based on their costs, i.e., the flow of monetary expenditures that have been disbursed in connection with the related resources. This implies a drastic easing of the required cognitive background (Anthony, 1960; Simon, 1978) because references are usually made only to the series of past and actual outflows (${}^{-}r_h$) related to that resource (or activity):

$$C_j = \sum_{h=1}^{n} {}^{-}r_{j,h} \quad (2)$$

where C is the cumulative amount of expenditures ${}^{-}r$ disbursed over periods $h \subset (1,...,n)$ to develop and maintain the resource j up to time $t=n$.

Under historical cost accounting, the accounting recognition[4] is performed under stabilizing accounting conventions established at the entity, industry or economy levels. Contrary to the stock method, no legal or material support (which would be necessary to make the resource or the activity marketable) is required for the cost capitalization of an asset. The

[4] Recognition is a technical term that means inclusion in financial statement through measurement and implies representation.

existence of imputable outflows and conventional conditions are the only requirements that apply. Table 1 summarizes the main differences in methods of accounting and reporting stemming from the two bases.

Insert Table 1 here

The regulatory treatment of so-called "intangible" assets offers a conspicuous example of the consequences of the two accounting bases. For instance, the international accounting standard for intangible assets (IAS38: §39) retains a market basis that links informational reliability to market-based estimates of value. Therefore, this accounting standard assumes that market quotations are reliable and refuses to recognize the value of assets through measurement of the expenditures for resources that lack a proper market basis[5], although the international accounting standards-setting body has acknowledged that an "*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).[6] By contrast, the entity-specific basis of accounting, including a pure historical-cost accounting system, is able to capitalize and amortize these expenditures (including deferred charges) as depreciable assets in the same way as previous accounting systems and regulations, including the French systems, had performed, in accordance with specific conventions at the entity, industry, or economy levels.

The same line of reasoning is applied when a distinction is made in accounting between internally generated intangibles and externally purchased intangibles. When intangible assets (or the whole firm) are acquired in a market transaction (acquisition, or "business combination" in accounting jargon), the transaction price is recognized as evidence of value and is then used to account for intangible assets (or goodwill). In such cases, the value of intangibles (or the value of the firm) is assumed to be "revealed" by the market bid. This market basis underpins the puzzling idea that the market price of intangibles (or the firm) may properly be used to evaluate intangibles, whereas the underlying resources are not recognizable and cannot be accounted for through the market-basis accounting system that is supposed to provide high quality information about those resources (and their use) to

[5] This includes 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).

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

investors and the public. In contrast, internally generated intangibles are often dismissed. Notwithstanding their tremendous impact on economic growth, productivity, and firm performance, there is often no reference to them, whenever they have not been traded on the markets and the associated property rights are not clear-cut. This occurs because no identifiable support for determining value exists in the latter cases. There is then a lack of material or legal support that (*i*) arises from contractual or other legal rights controlled by the entity and (*ii*) can be measured reliably at its current value in a way that takes the market as a reference.

This line of reasoning results in any residual value between the agreed-upon consideration which is paid for an on-going business in a business combination and the estimated current value of the set of identifiable resources acquired in that business combination being capitalized as goodwill (Baker, Biondi and Zhang 2008). This is quite a paradoxical recognition of the intangible dimension of the business firm, which is recognised as something that exists and deserves accounting representation only when it ceases to exist as a separate entity because it has been sold in an acquisition. Many intangibles that are not recognized when a firm continues to search, maintain and develop them are recognized as an accounting asset only in the case of a business combination (see IFRS3, Illustrative Examples from No. 16 to 44, illustrating the conseguences of applying paragraphs 10-14 and B31-B40 of IFRS3 devoted to intangible assets). In fact, this market basis of accounting lacks accountability and control because it assumes that the consideration that has been paid is the best evidence of value that should be allocated among identifiable resources and goodwill. Furthermore, goodwill becomes a permanent asset that is no longer depreciated but only impaired over time (FAS No. 141, issued in 2001; and IFRS3, issued in 2005).

THE BOARD OF DIRECTORS AND THE CERTIFICATION OF DISCLOSED FIRM-SPECIFIC INFORMATION

In every jurisdiction, corporate law provides listed companies with a Board that is in charge of controlling the firm. It may either be a Board of directors (in the USA, the U.K. and Japan) or a supervisory Board (in Germany). French company law allows either type of Board[7]. The controlling function of the Board entails two interrelated tasks. The first task

[7] The analytical framework provided here applies to both cases (i.e., Boards of directors and supervisory Boards).

relates to the monitoring the performance of corporate executives. In particular, the Board has the ultimate power to dismiss the CEO. As such, a well-functioning Board should be able to identify a poorly performing CEO and to replace him/her. The second task relates to the disclosure of information to outside stakeholders (Bushman and Smith 2001). This task is primarily accomplished through the certification of financial statements and other public disclosure. For this purpose, the directors work closely with external auditors. The Sarbanes-Oxley Act (SOA), passed in 2002 in the USA, gives the audit committee power (and responsibility) over the firm's auditor relationship and audit policies. Under French corporate law (Code de commerce: art. L232), the Board of directors of listed companies must certify the financial documentation (*Documents comptables*), which includes the balance sheet, the income statement and also the *Rapport de gestion* (business report). This ducomentation includes, among other things, disclosures regarding the general situation of the firm and its expected evolution, and a document detailing how the company is dealing with the social and environmental consequences of its corporate activities.

Board independence has been primarily advocated since the beginning of the 1980s by U.S. activist shareholders, and in particular by managers of public pension funds that are affiliated with the "Council of Institutional Investors". In principle, independence is a moral quality and attitude of individuals that enables them to avoid any collusion or conflict of interests. In reality, independence has been defined "de jure" by regulations, governance codes and corporate statutes by legalistic criteria (or proxies) that actually place directors at a distance from the ongoing business activity. Accordingly, "de jure" independence is assumed to be 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 bBoard, (*iv*) is a major shareholder (or block-holder) of that company or (*v*) has a significant business relationship with that company or its affiliates. This "de jure" independence has become a central requirement in the many corporate governance codes that have been published over the past twenty years[8]. In addition, depending on the jurisdiction, company law and/or stock market regulations now require the presence of some independent directors. A conspicuous example of the "conventional wisdom" regarding director independence (Bhagat and Black, 1999) is offered by the rating provided, since 2002, by

[8] See, for example, the Cadbury (1992) and Higgs (2003) Reports in the U.K. and the Viénot (1993 and 1999) and Bouton (2002) Reports in France.

Institutional Shareholder Services. This private firm assesses the corporate governance of 7500 listed companies (including 2500 companies in the USA), based on 60 different criteria. This assessment is subsumed by an index called *Corporate Governance Quotient* (CGQ). In 2005, the adoption of a "super-majority Board" (defined here as a Board with at least 90% independent members) was considered the 4th most important criterion out of 60, and the score on this criterion had a material impact on the final rating.[9] With all of this influential support for "de jure" independence, the share of "independent directors" has steadily increased over the past decade in the U.S., as well as in the U.K. and in France.

A number of studies in finance have focused on the impact of independence, but the empirical evidence is rather disappointing because it suggests that "de jure" independence has a negligible or negative effect on firm performance as measured by share market value or productivity (Dalton, Daily, Ellstrand and Johnson, 1998; Bhagat and Black, 1999; Bhagat, Bolton and Romano, 2007).[10] While numerous explanations have been proposed[11], we argue that independence, as factually defined and advocated, might lead to some important drawbacks in an economic environment (and in business models) characterized by complementarities, innovation and intangibles. "De jure" independence equates "outsider" with "independent". A "de jure" independent Board may, thus, lack the specific insider knowledge of the firm that would be needed to efficiently monitor corporate executives. In fact, it is widely recognized that independent (outside) directors are at a cognitive disadvantage compared to non-independent (insider) directors (see, e.g., Baysinger and Hoskisson 1990, p.74; Klein 1998, p. 278; Osterloh and Frey 2006). Accordingly, while a higher degree of "de jure" independence might increase the propensity of the Board to avoid collusion and dismiss poorly performing managers, it may also involve an opportunity cost by decreasing the specific knowledge that the Board has about the business firm, thereby undermining the Board's ability to monitor corporate executives and disclose information in a business model that is driven by intangibles. Asking a pure independent (outside) director

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[9] Institutional Shareholder Services, 2005, "Explaining the CGQ methodology change process," http://www.issproxy.com/pdf/CGQevolvingmethodologyWP.pdf

[10] In this regard, see the conclusion of the meta-analysis performed by Dalton, Daily, Ellstrand and Johnson (1998: 278): "*The evidence suggests, then, that Board composition has virtually no effect on firm performance.*" See also the conclusion of the survey by Bhagat and Black (1999: 942): "[*m*]*ost studies find little correlation, but a number of recent studies report evidence of a negative correlation between the proportion of independent directors and firm performance – the exact opposite of conventional wisdom.*"

[11] See, for example, Gordon (2007), who argues that independence has no individual (firm) effect but that it does have a systemic effect. See also, Jensen, Murphy and Wruck (2004) who stress that outside directors are often the CEOs of other companies. As such "*it is natural for them to subconsciously (if not consciously) view the Board through CEO eyes – a lens where the power of the CEO is not seriously challenged*" (p. 55).

(e.g., an academic lawyer with expertise in corporate governance) to join the Board of a bio-technology firm and to thus become a member of the Board that has the responsibility of Board certifying the information disclosed by the firm about the way it is dealing with the environmental consequences of its corporate activities, is like appointing an economist to an academic jury for a PhD dissertation in theological aesthetics. By contrast, being involved in the on-going operations of a firm (as are executives and employees in non-executive positions) or being in close connection with the firm (the way investment bankers and major shareholders are) would provide a noticeable advantage in the areas of discovery and certification of firm-specific information based on specific knowledge of the firm, its business model, and its industry.

Basically, our argument is that the congeries of the business firm over time raises cognitive concerns that are as important as disciplinary ones. Efficient monitoring requires both the ability to detect a "bad" CEO (a cognitive dimension) and the disposition to fire the "bad" CEO (a disciplinary dimension). In the same way, trustworthy certification of disclosed information requires the ability to assess firm-specific information as well as a willingness to refuse accreditation of biased or narrow reports. As a consequence, the global quality of control over the business firm increases with both the independence of directors and with their access to entity-specific knowledge.

In sum, given the trade-off between "de jure" independence and firm-specific expertise, the effect of the increasing importance of intangible resources and firm-specific complexity and dynamics is straightforward. The relative value of "de jure" independence in comparison with the value of specific expertise is decreasing, and the optimal level of "de jure" independence is becoming smaller. By contrast, full independence or a super-majority Board (with only a very small number of non-independent Board members) corresponds to a corner solution, where the whole controlling function of the business firm is reduced to watching to ensure that accurate market prices have been used as references to value corporate net assets (or bundles of them). Generally speaking, in the presence of complementarities, innovation and intangibles that drive the special economy of the business firm, the Board of directors must cope with entity-specific, insider-relating information to fulfill its governing responsibility in terms of control and disclosure. Accordingly, and contrary to current "*conventional wisdom*" (Bhagat and Black, 1999), "de jure" independence is not and cannot be the only quality possessed by effective directors that face entity-specific concerns.

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 control. Enron had a 'supermajority' Board (similar to WorldCom) with independent members constituting more than 80% of the total membership. In addition, "*The Subcommittee* [of the U.S. 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*" (Committee on Governmental Affairs of the U.S. Senate, 2002, p. 8). However, those generic qualifications did not prevent a major failure in the Board's monitoring function. The reaction of the Board to the 'Raptor' operations that precipitated Enron's fall is suggestive. Informed of all the details by Chief Financial Officer Andrew Fastow, the Chairman of the Board, Norman Blake, suggested 'filing a patent' for the accounting techniques that had been used (ibidem, p. 21, note 47). Later, in his testimony before the Senate committee, Chairman Blake qualified the Raptor operations as 'leading hedge accounting' (ibidem, 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, who was 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 CEO Kenneth Lay, concluding: '*We're such a crooked company*'. To be sure, "de jure" independence requirements were strengthened after this incident by the Sarbanes-Oxley Act, which was enacted in part as a response to the way financial ties between the company and its directors contributed to the Enron collapse. However, this change did not fix the problem: *de jure* independent Board members, even if they are expert in accounting and finance, might be intrinsically unable to grasp the key factors driving the firm's performance and specific risks. In recent decades, corporate governance codes and regulations regarding Board members have insisted on their literacy in accounting and finance, acquired through MBA training or professional activity in banking and finance, but these codes and regulations have neglected to place similar emphasis on familiarity with the socio-economic conditions in which business processes were initiated and with the subsequent choices that were made in relation to the firm's development and evolution over time.

The bankruptcy of Lehman Brothers in the wake of the 2008 sub-prime mortgage crisis provides another example of deficiencies in Board oversight and accounting representation. In this case, the investment bank had a super-majority Board that satisfied the

Sarbanes Oxley Act provisions. However, a closer look at the composition of the Board would lead a person to doubt its efficacy (Minow, 2008). One director was a theater producer, one was a retired U.S. Navy admiral, one was the former CEO of Sotheby and of the National Trust for Historic Preservation, and one person who was a director until 2006 had been a former Hollywood actress. A person may reasonably question the ability of independent agents with that kind of background to monitor the performance of a major bank that has a business model emphasizing financial innovation driven by massive securitization and derivatives trading. In addition, Lehman Brothers outperformed the U.S. bank share index until February 2008 (i.e., only a few months before problems emerged that eventually led to its failure). At that point, the market was inherently unable to correctly assess the value of the bank because of accounting and Board failures in providing timely and relevant firm-specific information, and other related problems.

The lessons that can be derived from the Enron case and the Lehman Brothers case are obviously anecdotal, and a comprehensive analysis of the cases would be beyond the scope of this paper. Nevertheless, both cases provide insights on the relationship between firm-specific performance measurement and risk, and corporate governance systems. Empirical evidence provides additional support for the importance of this relationship. In particular, Hsu and Wu (2010) highlight the distinction between Board members who can be classified as "insiders," "grey directors" or "independent outside directors." In accordance with this classification scheme, they provide evidence relating to the U.K. that "grey" directors are more informative and knowledgeable than independent directors in monitoring the management of firms. Reeb and Zhao (2010) investigate the relationship between Board members' human and social capital (i.e., their levels of expertise) and the quality of the information that is disclosed. The authors provide evidence relating to the USA that Board expertise is positively related to disclosure quality and that this relationship is particularly strong in the case of outside directors. In addition, firms that disclose more based on the directors' expertise enjoy a higher valuation, suggesting that investors experience difficulties in obtaining this information on their own. Saito (2010) investigates the way intangibles are treated from an accounting perspective and finds that the limited recognition of intangibles that results from market-based regulatory approaches induces myopic managerial decisions about R&D spending. The result is a decline in the return on assets because the misallocation of resources undermines the long-term profitability and sustainability of the business firm. An extensive qualitative investigation in New Zealand by Northcott and Smith (2010) confirms the proposition that Board diversity, the level of directors' skills and experience, and the Board members'

opportunities to learn about the firm-specific processes of production and development, are fundamental drivers of perceived Board performance.

THEORETICAL AND POLICY IMPLICATIONS

Our approach recommends the specific economy of the business firm as the starting point of a comprehensive analysis of intangibles and their implications for financial reporting and corporate governance. Intangibles are connected to the complementarities, complexity and dynamics that characterize the economy of the firm. Because of specific managerial actions, the very nature (and existence) of the business firm constitutes a specific economic environment that cannot be replicated by external market transactions. This approach casts doubts on the recent regulatory accounting approach in which a market-basis is adopted for financial reporting. Instead, it expands upon the usual agency-theory approach which is based on the minimization of agency costs, and it attempts to take into account the "costs of ignorance" that arise from the cognitive disadvantage of "de jure" independent directors regarding the specific features of the business firm that they are unable to effectively monitor from their outside position. Some implications of this approach for financial reporting and corporate governance will be developed in the following pages.

Implications for financial reporting

The market basis of accounting is increasingly advocated for the accounting and reporting of intangibles. The "transparency" of the business firm is proclaimed as a mantra. Accordingly, a reference to market prices is considered to be the best solution for the acknowledged difficulties of recognition and measurement of intangibles. This implies that financial accounting and reporting should take market prices as references to recognize intangibles in financial statements and disclosures. The reverse, unfortunately, also happens to be true: whenever intangibles lack appropriate indicators of market values, they cannot be recognized and accounted for.

As explained above, intangible resources are empirically related to expenditures for workforce training, R&D, and organizational innovation. These expenditures provide good examples of the problems of the market basis approach in accounting for intangibles. Following a market basis, current expenditures for workforce training cannot be capitalized as assets because the firm does not own its employees and cannot buy or sell them. Few would appreciate the reintroduction of slavery as a response to this shortcoming of the market

approach. As a consequence, the durable impact of continued training on firm performance is not recognized as an asset from an accounting perspective, and only current revenues can be used to pay off this expenditure (that is, training expenditures must be matched immediately against current revenues)[12]. The same problem arises with expenditures on research activities, which usually do not succeed any market test. Although investments in research have tremendous implications for business and societal performance and sustainability, they are paid off only by current revenues (and customers). As a consequence, the cost of research for new products relies entirely on the ongoing sales of old products to current customers because these costs cannot be recovered from the future customers who will benefit from the product innovation in due course. Following the market-based accounting approach, investing in research is treated as a "sunk cost" of the current period (Nakamura, 2003: 3) and not as an investment in intangible assets that are critical to the continued sustainability of the firm.

If it is difficult to recognize training and research as intangible assets under market basis of accounting, organizational innovation may pose even greater challenges because it primarily concerns changes in frame and shape of business activity and is not directly connected to monetary inflows. Its connection to business revenues and profits may result indirectly from interdependencies and contingencies generated by the specific economics of the whole firm because it is highly contextual and dependent on complementarities.

Regarding absent available market prices, some authors might suggest using marking-to models to estimate shadow prices under hypothetical market conditions. This approach insists on looking for the *values* of intangibles. Market prices, or some surrogates for them, are thus assumed to be the best evidence of the value of intangibles. However, the specific economics of the business firm that is driven by intangibles is actually unique, and is laden with complementarities and asymmetries such that the value of the firm's components can hardly be estimated by external market prices. This environment involves entity-specific conditions, and thus, if information about these conditions is missing, market pricing would appear to lack a proper basis for evaluation. Therefore, accounting for intangibles on a market basis provides problematic results and may have paradoxical implications.

[12] If pricing is based on a cost-plus or mark-up principle (i.e., as the application of a margin on average cost), then only (current) customers will pay for investments in intangibles when they are treated as current expenditures. From a theoretical perspective, this point refers to the non-neutrality of the accounting structure of production in the special economics of the business firm (Biondi 2005).

However, relying on available market prices (or imputable monetary inflows) is not the main way to account for intangibles. The entity-specific basis approach in accounting is able to cope with the unaddressed, or not perfectly known, congeries of the legal and economic system of any ongoing firm involving flows and immobilizations that require an accounting system to deal with them. The entity-specific basis of accounting refers to either cost measurement (including historical cost) or mark-to-model measurement, which depend significantly on entity-specific expectations and data. The market is by definition unable to validate these latter assumptions because they depend on *inside* conditions that are fraught with complementarities and asymmetries of control, information and access. Here, the cutting edge is the notion of "inside." This insider-related information may require a specific governance setting so it can be disclosed and audited in a reliable and consistent way. In any case, the ultimate problem of reliability remains open in regard to entity-specific estimates based on models or sophisticated techniques. Marking-to-models may generate subjective results sensitive to misrepresentation and manipulation. Therefore, improvements in historical cost accounting systems may be promising because historical *costs* have the important cognitive advantage of being fixed in most cases by actual transactions that can be tracked through time and that are easier to audit.

In particular, suggested improvements on a cost basis (i.e., a special kind of entity-specific basis) conflict with the centrality of *capital stock value* that is assumed by the market basis. Accounting for intangibles on a market basis implies discounting the future monetary inflows that are imputable to each intangible asset at the present time as if the intangibles generate their own rents separately from the rest of the business activity. However, intangibles often come into existence only through the ongoing process of the whole firm, and the whole firm is expected to recover the gains that they generate. In the specific economic environment generated by the firm, even though one intangible resource may contribute to some outcome that can be marketed separately (for example, a patent), its sale would imply losing all complementary and interdependent utilities embedded in its relations with other entity elements, and also losing the overall contingent advantage that contributes collectively to the renewal of firm performance over time. For this reason, the market basis seems unable to provide a theoretical justification for capitalization of every resource as an asset regardless of whether it is marketable.

In contrast to the capital stock value approach (implied by the market basis), cost accounting does not conflate discounted future inflows, which are actually expected revenues, with current monetary expenditures, which are actual costs. Accordingly, the firm's overall

capacity to generate income does not imply seeking some alleged capital stock value that is supposed to be at the origin of that income. Instead, assets are recognized as invested costs that have an expected utility in the future. Together with various resources involved in the specific economics of the firm, assets collectively generate the overall performance that is accounted for by financial statements. In this way, cost accounting may better cope with the multiple *qualities* of resources combined into the specific economy of the firm, instead of reducing them to homogeneous measures of capital stock value. In fact, the accounting representation is not limited to financial figures (quantitative information) because it can also include classifications and narrative explanations (qualitative information).

In particular, cost accounting for intangibles may fit workforce training and R&D expenditures into an accounting representation that discloses entity-specific information that is relevant to investors and the public, while still complying with the main purposes of auditing and enforceability of public information disclosure. Accounting for these intangible resources *at cost* implies taking into account as assets some bundles of actual monetary outflows that are imputable to the development and maintenance of the intangible resources. These outflows will be capitalized at the time of their expenditure and will be paid off (technically, matched against) by future revenues through depreciation and amortization, according to the resource contribution to the overall entity performance during the (expected) useful life of the resource. According to a leading accountant, (Ijiri 1975: 140, with adjustments), "[*the capitalization and amortization of research and development costs, intangible drilling costs and deferred charges, as well as of hiring, training and relocation costs related to human resources*] *is a method which accepts historical cost as the valuation principle* […] *and advocates a better matching of costs and benefits* […]. *Currently, these costs are expensed in the period in which they accrue, but the proposed change is to capitalize them and amortize them over the expected service life of the* [*related resources*]." Thus, although the firm does not own and trade on its workforce, the firm as an ongoing entity does possess systemic properties that are stable enough to allow for the establishment of accounting conventions on capitalization of expenditures for workforce-related intangibles. These conventions will achieve conditions of verifiability and comparability when established and maintained by regulatory bodies at industry or economy levels, or by the firm itself, over time. The same line of reasoning applies to expenditures for R&D projects as well as internally generated intangibles, such as brands, advertising or databases.

Some remaining concerns do arise in relation to accounting for organizational structure and innovation. Organizational structure and innovation are types of intangible

resources that lack a direct connection to actual monetary outflows, and thus, it would appear to be more difficult to establish enforceable conventions to deal with them. In fact, cost accounting has already opened the door to considering supplementary non-monetary systems of disclosure by leaving the stock method (which requires a set of homogeneous measures of value) and entering an overall accounting representation based upon a set of recognitions and classifications summarized by financial statements coupled with some narrative explanations (qualitative information). Therefore, following Benston, Bromwich, Litan and Wagenhofer (2003), and the review of that article by Biondi (2007), organizational structure and innovation may be accounted for through a system of non-monetary measurements that, in turn, may be audited and enforced according to accepted conventions at the entity, industry or economy levels. An interesting example of that approach is provided by the French regulation on social reporting ("*bilan social*"), which already requires large 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.

In conclusion, contrary to current wisdom, the problems with accounting for intangibles actually derive much more from the alleged market basis that many advocate than from the origins of traditional cost accounting systems in tangible economies. Among the methods of accounting on an entity-specific basis, improvements in cost accounting appear to be well suited for recognizing and accounting for intangibles while coping with the primary goals of auditing and maintaining the 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 disclosure of narrative information.

Theoretical implications for agency-based models of corporate governance

The suggested framework of analysis regarding the process of corporate governance and financial reporting expands upon the usual agency model, which is based on the minimization of agency costs. In fact, the Board of directors plays its governing role in a firm-specific economic environment fraught with innovation, intangibles and complementarities. This environment, which features the firm-specific economic context, exacerbates the information asymmetry between insiders and outsiders. The *relative* importance of intangible drivers of business performance and risk influences the *degree* of knowledge that each director (and the whole Board) should attain to effectively perform their duty. There is,

arguably, a trade-off between this degree of firm-specific expertise and the "de jure" independence as precisely defined by legislation and corporate governance codes. Therefore, agency costs should be reconsidered to add to the usual directors' remunerations, the ignorance cost (relative to the level of "de jure" independence) that arises because the independent Board does not have the ability to discover, understand and certify relevant non-market, firm-specific information. This cognitive perspective expands upon the mainstream agency approach, which is based on the minimization of agency costs. The costs of perks that arise from the likelihood of collusion should be assessed relative to the ignorance costs that arise from missing or misunderstanding the critical changes or frauds that are occurring in the business firm. The overall efficiency of the governance by the Board, including the certification of financial reporting, requires the minimizing the total agency costs which include both the cost of perks and the cost of ignorance. The occurrence of both kinds of costs relates to the degree of intangible drivers of performance and risk and to the cognitive capacity of the Board members (Biondi, Giannoccolo, and Rebérioux 2010).

Our analysis argues that because intangibles are significant to the economy of the firm, "excessive" independence may have adverse consequences and may ultimately damage the longstanding performance of the firm. This argument provides some support to the emergent critique of the independence "vogue". This critique foreshadows public opinion pressures (by institutional investors, regulators, the media, etc.) that have led listed companies to include 'too many' independent members in their Boards. This new perspective is championed by Roberts, McNulty and Stiles (2005), the main contributors to the Higgs Report[13] published in November 2003, who wrote: "*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). This may provide a plausible explanation for the empirical evidence that shows a disappointing, or even negative, effect of independence on performance.

This study has significant policy implications for the composition of the Board of directors. Some types of actors are better suited to cope with non-market information in an intangibles-driven business model. First, as already mentioned, actors who have long-term

[13] The Higgs Report supported the revision in November 2003 of the British Combined Code, which is the main source of regulation for listed companies in the U.K.

relationships with the firm as a going concern are natural candidates.[14] As such, 'grey' or 'affiliated' directors (i.e., employees, block-holders, etc.) may be highly valuable. Their association with the firm gives them cognitive advantages over de jure 'independent' directors, but they still remain distinct from the executive managerial team. Employees appear to be the best candidates because the workforce training they received in firm-specific capabilities and labor organization are the main components of intangible assets (see Corrado et al., 2006). The inclusion of employee representatives on the Board may enhance the Board's 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), who show that the inclusion of worker representatives on the (supervisory) Board of German firms is positively correlated with the performance of those firms (at least up to a certain point).

CONCLUSION

From a microeconomic point of view, intangibles have some remarkable features: in particular, they are characterized by blurred ownership and involve firm-specific complementarities. As a consequence, they are not marketable and do not have a clear market price. No market basis exists to discover and disclose specific information about these fundamental drivers of performance of the business firm. Therefore, the control of firms with a business model driven by complementarities, innovation and intangibles requires non-market, firm-specific information. This finding has far-reaching implications in relation to financial reporting and the composition and role of the Board. On the one hand, accounting and reporting for intangibles requires the introduction of a specific informational device based on entity-specific expectations and data. This especially points to the attractiveness of historical cost accounting systems, based on the sequence of realized monetary flows (to cover investments in intangible resources) coupled with narrative explanations. On the other hand, the Board of directors is expected to validate non-market, insider-related information relevant to investors and external users. To do so, actors that have close, long-term relationships with the business venture (i.e., de jure non-independent directors) may appropriately be appointed to the Board. Therefore, our analysis points to the attractiveness of pluralistic Board appointments, composed of independent members, corporate executives,

[14] Actually, from a corporate governance and control perspective, not onyl actors who actively contribute to the productive process, but also actors who deal with its resulting outputs such as costumers (concerned with products) and local communities (bearing unintended consequences or externalities, see Biondi 2011b).

affiliated members such as employee representatives and other actors with specific knowledge of the business model. By contrast, our analysis cautions against 'super' or 'full majority' Boards except in situations where business revenues originate from a simple set of separable tangible resources.

Private equity, by emphasizing the advantages stemming from insider control, might appear to offer a similar solution (Jensen, 1989; Holland, 2001). However, we have insisted on complementarities and intangibles. In this regard, there is a sound reason to believe that patient equity financing, which allows for discretion and applies to projects where resources are less re-deployable and more specific, is necessary to finance these firm-specific resources (Williamson, 1988). This finding contrasts sharply with the rushed, leveraged financing that lies at the heart of private equity, especially when it is used for leveraged buy-outs. In addition, private equity funds and other insiders may opportunistically exploit the specific economy driven by intangibles through entrenchment and other predatory strategies (Shleifer and Vishny, 1989; Froud and Williams, 2007) and may thereby damage the ongoing development of intangibles in the firm. In contrast, our analysis, by stressing the relevance of a pluralistic Board including worker representatives, provides support for the enterprise entity theory of the firm and of its governance (Biondi et al. 2007; Biondi 2009 ed.). From our perspective, this latter model should be coupled with accounting systems that provide entity-specific information and are based on historical flows. Following Ijiri (1975), this historical entity-specific basis of accounting is the most appropriate approach to clearly disclose the income-sharing dynamics among different stakeholders (including shareholders) and is useful in settling conflicts between diverging interests. In particular, it may be effective in detecting the eventual predatory strategies of insiders in the specific economy of the business firm.

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Table 1 – Main methods of accounting related to market- and entity-specific bases

	Market Basis	Entity-Specific Basis
Recognition criterion	Legal or material support making the underlying resource marketable	Continued (expected) utility of the underlying resource in subsequent periods
Accounting criterion	Efficient market prices based on discounting future cash flows generated by the separate Resources	Historical invested costs based on capitalizing imputable expenditures for development and maintenance of the resource
Key requirements	Identification of the support, future cash flows and rates of discount	Identification of imputable expenditures and conventions of capitalization (and eventual depreciation or impairment)
Accounting method	Stock method	Flow method