THE IMPACT OF INTEANGIBLE ASSETS ON FINANCIAL AND GOVERNANCE POLICIES: A LITERATURE REVIEW

Júlio Martins  
School of Economics of the University of Porto.

Sandra Alves  
ISCA – Institute Superior of Accounting and Administration of the University of Aveiro.

Abstract

This article provides a literature review about the impact of the intangible assets on the design of corporate financial and governance policies. Intangible assets show a set of characteristics—namely, high levels of risk and uncertainty, firm-specificity, human capital intensity, low observability and long-term nature—that make them markedly distinct from other categories of assets. These characteristics are likely to have substantial impact on the levels of agency costs of debt (asset-substitution and under-investment problems) and equity (hidden action and hidden information problems), information asymmetry levels between investors and managers, transaction costs of debt and equity, and non-debt tax shields. The severity of these effects is likely to influence the maximisation of managers, shareholders and debt holders’ utility functions, which show different rewards, diversification levels, risk preferences and business expertise. Also, it seems likely that the severity of those effects varies across categories of intangible assets.

Key Words: Intangible assets, corporate financial, governance policies, agency theory.

INTRODUCTION

Intangible assets (non-monetary assets that cannot be seen, touched or physically measured, such as brands, patents, software,...) have become an important source of firms' differentiation and competitiveness (Lev, 2001). The pace of technological innovation has led to an increased level of competition among
firms. Firms have reacted to this level of competition by increasingly investing in intangible assets, which enables them to renew their competitive advantages for a certain period of time. Consequently, differences in corporate asset structures – namely the level and the nature of the intangible assets – may affect the distribution of rents among the main categories of a firm’s stakeholders – managers, shareholders and debt holders. Managers contribute with human capital, whereas debt holders and shareholders contribute with financial capital (of a different nature, hence with different rights) to the firm. The maximisation of the utility function of each category of stakeholder is a function of the return or remuneration structure (that entails quite heterogeneous components), risk profile, diversification level and business expertise. This suggests that the interactions among the firm’s stakeholders are a complex issue in the presence of intangible assets.

Severe agency costs and information asymmetry problems have obvious impact on the relationship between shareholders, managers and debt holders, and the way they share risks and returns. Given the nature of a knowledge-intensive firm, asset-substitution and under-investment effects are increasingly important. Very often, investors (shareholders and debt holders) have limited knowledge about the technicalities of the companies in which they invest. The more important the amount of intangible assets, the greater is the scope for managerial discretionary power. Also, as intangible assets cannot serve as collateral, the risk-shifting incentive (asset-substitution risk) increases. The value of most intangible assets is endangered when bankruptcy occurs. Summing up, intangible assets are associated with significant equity and debt agency costs, information asymmetry costs, transaction and bankruptcy costs. These costs are likely to have an impact on the design of different portfolios of financial and governance policies, which are in place to align the interests of managers, debt holders and shareholders. This study aims to contribute to the understanding of this issue by doing a literature review about the impact of intangible assets on financial and governance policies.

If one restricts the analysis to one theoretical framework, some important arguments could be neglected. This complementarity of theoretical perspectives seems particularly important for understanding the impact of intangible assets on the design of financial and governance policies. Consequently, unlike most review, this literature review is grounded on multiple theoretical perspectives. Indeed, intangible assets have a direct and a non-negligible impact at least on the level of agency costs, information asymmetry costs, transaction costs, bankruptcy costs and non-debt tax shields. So, agency theory, information asymmetry models (pecking order theory and signalling models), transaction costs economics models and models considering the existence of bankruptcy costs and non-debt tax benefits are incorporated in the analysis. In terms of the governance literature, the arguments of agency theory and stewardship theory are also considered.
The remainder of the article is structured as follows. In section one, we provide an overview of the characteristics of the intangible assets. In section two, we review the main theoretical frameworks of financial and governance policies. In section three, we present the potential impact of intangible assets on the most important financial and governance mechanisms. Finally, section four concludes the article.

1. INTANGIBLE ASSETS: GENERAL CHARACTERISTICS

Intangible assets show a set of characteristics – namely, high risk and uncertainty, firm-specificity and human capital intensity - that make them markedly distinct from other sorts of assets. Five main economic characteristics distinguish intangible assets from other types of asset: no rivalry between uses, the existence of network effects, the lack of complete appropriability of the benefits by the intangible asset "owner" (partial exclusivity problem and spillover effects), the high level of inherent risk and uncertainty, and, finally, the non-tradability of most intangible assets (Lev, 2001).

No rivalry or scalability means that the use of an intangible asset in a given activity does not preclude its use in another activity.

Intangible assets are also characterised by the existence of important "network effects". The value of this kind of asset increases with the number of users (Lev, 2001), suggesting the importance of becoming the industry standard. Networks exhibit positive consumption and production externalities (Economides, 1996), which result from the complementarity between the network components.

Unlike what happens with tangible assets (for which the property rights are clear), most intangible asset intensive firms are not able to completely exclude other companies (namely competitors) from capturing some of the benefits of their intangible assets investments, without sharing the costs of developing them. The lack of effective control is often mentioned as a reason for the non-recognition of intangibles as assets on financial statements. This, therefore, has an important potential impact on the levels of information asymmetry and agency costs associated with these sorts of asset.

The high level of risk and uncertainty is perhaps the most critical characteristic of intangible assets because they impair the performance of market mechanisms (Dixit, 1988). Uncertainty takes two different forms concerning technological success (technical feasibility) and economic value (market acceptance) (Freeman, 1982). Large sunk costs can generate a high level of future returns if the innovation succeeds, but a null return if it fails. As Lev (2001, p. 39) argues "the riskiness of intangibles is, in general, substantially higher than that of physical and even financial assets".
Most intangible assets are not tradable, that is, there are not organised or liquid markets where intangible assets can be bought and sold (Long and Malitz, 1985). As market prices convey relevant information about asset productivity and values, the inexistence of market prices to value intangible assets has significant impact on the levels of information asymmetry and agency costs (Aboody and Lev, 2000).

Intangible assets are far from a homogenous category of assets. They include such dissimilar components such as RD, brands, organisational capital (e.g., distribution channels and manufacturing skills), relationships with customers and suppliers, reputation, alliances, market share, and so on.

The levels of risk and uncertainty associated with different sorts of intangible assets are quite different. Among all intangible assets, RD assets seem to present levels of some characteristics that make them potentially distinct from other categories of intangible assets. As Lev (2001, p. 37) points out “it is widely recognized that innovation is highly risky relative to other corporate activities, such as production, marketing, and finance”.

Empirical evidence incorporating the potential distinct impact of different sorts of intangible assets on financial and governance polices is limited. Long and Malitz (1985) investigate the impact of RD and advertising expenditures on leverage. They report a negative and significant impact of RD and advertising on debt. Some authors (e.g. Crutchley and Hansen, 1989) even aggregate RD and advertising expenditures in a sole variable. By doing so, they implicitly assume the inexistence of different effects for the two variables1. In contrast, a distinct impact of RD and advertising is reported in some empirical studies. In this vein, Himmelberg et al., (1999) find that RD intensity seems to have a negative impact on managerial equity ownership, while advertising intensity appears to have a positive impact on managerial equity ownership.

Studies of a different nature also frequently distinguish between categories of intangible assets. Morck et al., (1988) find that Tobin's Q and profit rates (their proxies for corporate performance) are positively related with RD, while no significant relationships with advertising exist. Demsetz and Villalonga (2001) find a similar result for the Tobin's Q. McConnell and Servaes (1995) report mixed impacts (positive or null) of RD and advertising expenditures on Tobin's Q, while McConnell and Servaes (1990) report systematic positive impacts of RD and advertising expenditures on Tobin's Q. Evaluating the long-term valuation effects of RD and advertising, Hirschey and Weygandt (1985) find consistent positive valuation effects for RD and advertising for all firms and for the sub-sample of firms producing nondurable goods. However, for firms producing durable goods

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1 Aggregating RD and advertising, Crutchley and Hansen (1989) find that the aggregate variable has no significant impact on managerial equity ownership, and a negative and significant impact on leverage and dividend policies.
that positive valuation effect disappears for advertising while persisting for RD. Finally, Chauvin and Hirschey (1993) report that valuation effects of advertising expenditures depend on firms' size, while those effects exist for RD expenditures no matter the firms' size.

2. FINANCIAL AND GOVERNANCE THEORIES

Although it is common to choose a single theoretical paradigm and develop the theoretical/empirical work within that selected paradigm, the nature of the intangible assets seems to require the use of complementary theoretical perspectives. Indeed, intangible assets have impacts on multiple, key dimensions of a firm, such as the level of non-debt tax shields, bankruptcy costs, agency costs, information asymmetry and transaction costs.

Financial policies – Under assumptions of symmetric information, no transactions costs, perfect and complete markets, no taxation and rational behaviour, Modigliani and Miller (MM) (1958) demonstrate the irrelevance of financial policies. The first challenge to the original MM model came from models incorporating taxes. Alongside the “interest tax shield”, these models consider the existence of non-interest tax shields. It is expected that non-interest tax shields generate a lower level of debt, _ceteris paribus_ (DeAngelo and Masulis, 1980). As expenditures on intangible assets are usually treated as expenses when incurred, they generate non-interest tax shields (making “interest tax shields” redundant), leading to low debt (Bradley et al., 1984; Balakrishnan and Fox, 1993).

The trade-off theory brought in financial distress costs, which mainly come from bankruptcy costs (Castanias, 1983). Since “asset liquidity is an important determinant of the costs of financial distress” (Shleifer and Vishny, 1992, p. 1364) and the value of most intangible assets depends on the existence of the firm as a “going concern” (Myers, 1977), bankruptcy costs will be relatively higher in intangible asset intensive firms. As a consequence of both high non-interest tax shields and high financial distress costs, the level of debt is expected to be low in intangible assets intensive firms.

The asymmetric information approach assumes, in contrast with the MM model, that managers have superior information about future returns and growth opportunities of the firm. One can anticipate that the level of insiders’ “superior information” is higher in intangible asset intensive firms. Signalling theory argues

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2 In this vein, RD costs ratios are often used as a proxy for the size of the information asymmetry problem (e.g., Dittmar et al., 2003; Noe and Rebello, 1996). More, Aboody and Lev (2000) find that officers’ gains from insider trading are substantially larger in RD firms than in non-RD firms.
that managers have incentives to disclose their superior information to capital markets through their financial choices, namely through financial structure (Ross, 1977) and dividend policy (Bhattacharya, 1979). Since the intensity of the signal should depend positively on the size of the information asymmetry gap (because the benefits resulting from using the signal are maximised), and good (low risk) firms are typically more debt-financed, the signalling arguments suggest that managers of intangible asset intensive firms should use more debt.

Information asymmetry models also argue that insiders have incentives to sell overvalued claims to new investors. This would generate adverse selection, leading to under-investment by firms. Consequently, the capital structure would be designed to mitigate inefficiencies in firms' investment decisions caused by the information asymmetry phenomenon (so, against the MM prediction, there is a link between investment and financing policies). Accordingly, pecking order theory (Myers and Majluf, 1984; Myers, 1984) argues that firms favour financing sources requiring lower levels of information disclosure. Therefore, first of all, firms use internally generated cash flows, after that debt and, finally, new equity issues.

Within information asymmetry models, signalling theory suggests that the "informational content of dividends" enables a reduction in levels of information asymmetry between managers and investors about the future prospects of the firm (Ross, 1977). The credibility of dividend policy as a signal comes partially from the fact that it is too costly for "bad" firms to use it as a signalling device. So, intangible asset intensive firms, if they want to signal "good quality", should have high dividend payouts. Signalling theory also argues that, alongside dividends, firms use other financial characteristics (such as financial structure) (Ross, 1977; Easterbrook, 1984) and ownership structure (Leland and Pyle, 1977) as signals. Finally, pecking order theory (Myers and Majluf, 1984; Myers, 1984) argues that firms select financing sources that require lower levels of information disclosure, which means preference for profit retention. As firms with more intangible assets are characterised by high information asymmetry, one anticipates that intangible asset intensive firms show low dividend payouts in order to mitigate the under-investment problem. So, contradicting MM's prediction, there is a link between dividend payments and investment policy.

Models considering the existence of incentive problems have attracted significant theoretical and empirical attention. Agency theory argues that financial policies are determined by agency costs. Given intangible asset characteristics, agency costs are expected to be high in intangible asset intensive firms. Jensen and Meckling (1976) identify two sources of conflict: the separation of ownership and control and the equity-holder/debt holder conflict. Shareholders can reduce the size of the conflict with managers (but not eliminate it) through a "remuneration package" that trades off performance incentives and risk-sharing, enabling,
for instance, managers to become equity holders (Jensen and Meckling, 1976). Increased debt also reduces the agency conflict since it increases managers' share in the equity and decreases the amount of free cash flow available for over-investment by managers (Jensen, 1986). In its turn, the equity-holder/debt holder conflict results from the "asset substitution" (or risk-shifting) problem, which is exacerbated by intangible asset characteristics.

Agency theory also suggests that managers, who have their non-diversifiable human capital invested in the firm, want to ensure the future viability of the firm (Fama, 1980; Zingales, 2000). Since managers are risk averse (and intangible assets investments are particularly risky), one way of reducing their overall risk is decreasing the firm's debt (Friend and Lang, 1988; Berger et al., 1997). Given the relevance of managers' human capital and the asymmetry of expertise between managers and shareholders, the impact of the hidden action and hidden information problems seems crucial in the design of the financial structures in intangible assets intensive firms.

Expanding the implications of Jensen and Meckling's (1976) agency theory, the role of dividends as a disciplining device is initially found in Rozeff (1982) and Easterbrook (1984). The governance effects of dividends result from the need for new equity issues in the primary capital markets, leading to increased monitoring of managers' performance and firms' future investments' profitability by investment banks, stock exchanges, auditors and capital suppliers (Rozeff, 1982). Given the sophistication level of the first three categories of institutions and the self-interest of the potential investors, monitoring by capital markets emerges as an efficient controlling device. Transaction-cost economics theory directly challenges other assumptions of the MM model, since actual firms face transaction costs, which depend on firms' characteristics. Williamson (1988) argues that financial structures depend mainly on the characteristics of their assets: redeployable assets are financed by debt (based on explicit contracts), while non-redeployable assets (such as most intangible assets) are financed by equity (since equity allows greater flexibility). Hence, debt and equity must be seen not only as alternative financial sources but also as alternative governance mechanisms. Transactions costs are also relevant when considering alternative financing sources, influencing consequently the dividend policy.

Summing up, there are many arguments – non-debt tax shields, bankruptcy costs, agency costs, information asymmetry and transaction costs – suggesting the relevance of the characteristics of intangible assets on the design of the financial structures. This potential relevance is explored in section three.

Corporate governance theories – The bulk of corporate governance research aims to understand the consequences of the separation of ownership from control on firms' performance. In other words, corporate governance analyses the effects
of Adam Smith's (1776) old warning about the "negligence and profusion" arising when people run companies, which are "rather of other people's money than of their own" in contrast with the "anxious vigilance" of the owners. In this sense, "corporate governance is, to a large extent, a set of mechanisms through which outside investors protect themselves against expropriation by the insiders" (La Porta et al., 2000, p. 4). Contrasting with this perspective based on conflicting interests, the stewardship approach defends the existence of a collaborative relationship between managers and shareholders. The adoption of one of these two divergent perspectives has significant impact on the choice of devices that can be used as monitoring mechanisms and the nature of the relationship (complementary or substitutability) between them.

Agency problems play a central role in the emergence of governance structures. "Agency problems arise because contracts are not costlessly written and enforced" (Fama and Jensen, 1983, p. 304). Since contracts are not complete, moral hazard and adverse selection problems remain.

Particularly in intangible asset intensive firms, managers can improve their bargaining position by developing "manager-specific investments". Also, the level of contracts' incompleteness seems to increase with the level of intangible asset intensity. The costs of writing and enforcing (increasingly incomplete) contracts become severe when managers possess better business expertise than financiers (shareholders and debt holders).

From the shareholders' point of view, since innovation projects are risky, unpredictable, long-term, labour intensive and idiosyncratic, "it turns out that contracting under this set of circumstances is particularly demanding" and, as a consequence, "the agency costs associated with innovation are likely to be high" (Holmstrom, 1989, p. 309). Moreover, in the presence of intangible assets, the agency problem seems to move away from the classical managerial propensity to excessive remuneration and perquisites consumption to other components of a manager's utility function.

From the debt holder's perspective, "because the assets of high growth firms are largely intangible, debt holders have more difficulty observing how stockholders use assets in high growth firms" (Goyal et al., 2002, p. 45). Consequently, as the scope for discretionary behaviour is higher in more intangible asset intensive sectors than in traditional industries, the asset substitution (risk shifting) and under-investment problems increase, exacerbating adverse selection problems. So, facing high agency costs, high information asymmetry and high bankruptcy costs, debt holders limit the amount of credit to intangible asset intensive firms.
3. THE IMPACT OF INTANGIBLE ASSETS ON FINANCIAL AND GOVERNANCE POLICIES

Within the theoretical frameworks presented in the previous section, this section aims to debate theoretically the potential impact of intangible assets on key financial and governance policies. According to the criterion of “who” defines “what” policy, we identify two distinct groups of financial and governance policies. In the first group, we consider the set of major financial and governance policies that directly depend on the interactions between a firm's shareholders, managers and debt holders. These variables are financial structure, dividend payout, managerial equity ownership, external equity ownership, board structure and audit demand. In the second group, there are four major governance devices - the market for corporate control, financial analyst, the level of competition in the markets for inputs/outputs and the market for managers. Unlike the previous six devices, these four do not result from the interactions between firms' shareholders, managers and debt holders. Nevertheless, they are, at least, as important as the ones classified in the first group and their level of use also depends on the level of use of the former devices. The level and nature of intangible assets seem also to influence the level of this second set of governance devices.

3.1. Major Financial and Governance Policies Depending on the Interactions Among Shareholders, Managers and Debt Holders

Financial Structure – Equity and debt have different governance properties. Equity comes with voting rights (Hart, 2001). Voting power is a fundamental element of equity ownership since significant influence comes from it (Leech, 2000).

In its turn, debt reduces the agency costs of equity. Since debt mitigates the amount of free cash flow, it reduces the amount of liquid resources under managers' control, increases the monitoring activity by financial markets and commits future cash flows to debt-related payments. Debt covenants also frequently limit managerial discretionary power (Moyer et al., 1992).

However, debt increases the agency costs of debt (Jensen, 1986; Crutchley and Hansen, 1989). Shareholders can expropriate wealth from debt holders by increasing the risk of a firm's investment decisions (the asset-substitution problem), and by foregoing profitable investments when the wealth increases benefit mainly debt holders (the under-investment problem).

Given the characteristics of intangible assets, it is likely that the marginal costs of debt offset the marginal benefits of debt at low levels of leverage. As intangible assets require highly specialised expertise (held by managers), they are
associated with high agency costs (of debt and equity). As "we would expect to see specialisation in the use of the low agency cost arrangement" (Jensen and Meckling, 1976, p. 355), shareholders prefer equity instead of debt to finance intangible assets in order to save the costs of debt holder requirements (Myers, 1977). Transaction-cost economics theory also supports the preference for equity when asset-specific investments are involved, since it enables the firm to save on transaction costs. Debt is more suitable for re-deployable assets (Williamson, 1988). Finally, as financial distress costs are high in intangible asset intensive industries and expenses with intangible assets generate non-interest tax shields, the level of debt is expected to be low in intangible asset intensive industries. In this vein, Sen and Oruç (2008), using Turkish data, find a negative relationship between debt and intangible assets. Alves and Martins (2009, 2010) find that higher intangible asset intensity and RD activity are associated with lower leverage.

Contradictorily, pecking order theory predicts the preference for debt when financiers face high levels of information asymmetry, since a new debt issue requires less information disclosure than an equity issue. This suggests a positive relationship between intangible assets and debt. Al-Najjar and Taylor (2008), using Jordanian data, and Salawu and Agboola (2008), using Nigerian data, find this association.

**Dividend Policy** – The role of dividend policy as a monitoring device is initially found in Easterbrook (1984) and Rozeff (1982), extending Jensen and Meckling's (1976) agency theory. High dividend payouts, increasing the need for new equity issues, lead to further monitoring of managers' performance by investment banks, stock exchanges, auditors and capital suppliers (Rozeff, 1982; Easterbrook, 1984). Given the sophistication level of the first three categories of institutions and the self-interest of the potential investors, monitoring by capital markets seems to be an efficient controlling device. Easterbrook (1984) argues that new investors are better than old ones at reducing agency cost because they are not stuck yet. Even when dividend payouts do not require new equity issues, they set higher debt-equity ratios. Finally, complementing Easterbrook's (1984) and Rozeff's (1982) hypotheses, Jensen (1986) argues that dividends reduce the over-investment costs arising from the existence of free cash flow (cash flow exceeding the amount of positive NPV investments faced by the firm).

As external credit markets require high premiums for intangible asset intensive firms, the internal credit market becomes the lowest cost-financing

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2 Kim and Maksimovic (1990, p. 1129) find that "the question of optimal capital structure in agency models cannot be divorced from explicit consideration of the firm's technology", and show that "changes in a firm's financial structure affect the optimal composition of the firm's assets" (which suggests that studies of financial structure determinants may be subject to simultaneity bias).
source\(^4\). Consequently, "R&D intensive firms tend to pay little or no dividends" (Chan et al., 2001, p. 2436). This belief is consistent with pecking order theory (Myers and Majluf, 1984). As intangible assets are characterised by high levels of information asymmetry (Aboody and Lev, 2000) and financing choices are determined by the relative costs of alternative financing sources, intangible asset intensive firms are preferably financed by profit retention. The reason for this choice is that this financing source does not require any external information disclosure. Two other reasons can justify the low level of dividend payments in intangible asset intensive industries. First, as a significant proportion of intangible asset intensive firms are not profitable, they do not pay dividends. Second, some intangible asset intensive firms do not have production activities (for instance, the "pure" RD firms in the biotechnology sector). So, as they do not have a foreseeable and stable stream of cash inflows, it is not rational to pay dividends to investors today and ask for fresh money from financial markets tomorrow.

**Managerial Equity Ownership** - Agency problems arise because "the decision managers who initiate and implement important decisions are not the major residual claimants and therefore do not bear a major share of the wealth effects of their decisions" (Fama and Jensen, 1983, p. 304). Hence, managerial incentives that make (to some extent) managers "residual claimants" potentially play a central role in reducing the agency costs of equity (Jensen and Meckling, 1976). In a world of complete contracts (where the payoff functions of each stakeholder is fully specified), incentives are unnecessary and managers earn a fixed salary.

Alongside the general agency problems between managers and shareholders, it is important to consider the "unobserved heterogeneity in the contracting environment across firms" (Himmelberg et al., 1999, p. 354). Among the factors of "unobserved heterogeneity" are the costs incurred with intangible assets (Himmelberg et al., 1999). As Francis and Smith (1995, p. 385) argue, "the high and idiosyncratic nature of these costs hinders the design of incentives contracts, which are effective at spurring inventive activity and precludes the use of relative performance schemes".

As intangible asset intensive firms are largely based on managerial human capital and intangible assets' performance is difficult to measure (especially in the early stages of the investment in intangible assets), market-based performance incentives are expected to replace fixed compensation and bonuses based on accounting numbers in intangible asset intensive firms. There is a large panoply of market-based performance incentives, such as share options plans, long-term incentive plans and managerial equity ownership. Among these alignment

\(^4\) Shi (1999, in Lev, 2001) finds that increases in RD spending are associated with higher costs of debt.
mechanisms, managerial equity ownership reflects a more long-term commitment with the firm and makes the manager a true "residual claimant". In other words, managerial shareholdings are expected to reduce the level of agency conflicts because managers bear a proportion of the wealth effects (a gain or a loss, not only a gain) as a shareholder and bear all the costs/benefits associated with the losses/gains in the value of his/her non-diversified human capital (Fama, 1980). High managerial ownership also signals to financial markets about the high quality of a firm's projects (Leland and Pyle, 1977). Given that intangible asset investments have a long-term nature, equity holdings by managers also increase managerial loyalty to the firm. Using UK data, Alves and Martins (2009) report that managerial equity ownership is lower in RD firms than in non-RD firms.

Contrasting with this positive point of view, an increasing number of authors suggest that managerial holdings may lead to increasing opportunism by managers. At some point, management entrenchment occurs (Morck et al., 1988; Short and Keasey, 1999).

Finally, using US data, Morck et al., (1988) find that, in fast growing/new firms, managerial holdings play a more important (signalling or compensation) role than in old, large firms. Demsetz and Lehn (1985), on the other hand, find that managerial ownership is positively related (but at decreasing rates) with monitoring difficulty. Joher et al., (2006), using Malaysian data, report a positive relationship between managerial equity ownership and intangible assets. Nevertheless, instead of alignment effects, since managers of intangible asset intensive firms have better knowledge than external shareholders about the firm's activities, they can use this information asymmetry to extract additional rents by holding the firm's equity (Grinblatt and Titman, 1997).

**External Equity Ownership** – When ownership is dispersed, no individual shareholder has incentives to support all costs of active monitoring while sharing the benefits with other shareholders. However, when share ownership concentration increases, as large shareholders bear a greater proportion of managers' value-destroying decisions, they have some incentives to carry out active monitoring of managers' decisions (Shleifer and Vishny, 1986; Demsetz and Lehn, 1985).

Due to the nature of intangible assets, intangible asset intensive firms are characterised by high agency costs (Holmstrom, 1989). The discretionary power

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9 Morck et al., (1988) find a U shape relationship between managers' alignment and managers' equity holdings. They suggest the existence of managers' entrenchment for stockholdings between 5% and 25%, and convergence of interests below and above those thresholds.

6 Short and Keasey (1999) find a similar non-linear relationship between firm performance and managerial ownership in the UK. However, the "entrenchment range" occurs between 12% and 40%. They point out two reasons for these higher entrenchment levels when compared with US. First, UK managers have more difficulty in setting up takeover defences than their US counterparts. Second, UK institutional investors seem more able to coordinate their monitoring actions.
and the scope for opportunistic behaviour by managers are high since they have a higher business expertise than shareholders.

Large shareholders may collude with managers and pursue their own interests at the expense of smaller shareholders (Shleifer and Vishny, 1986; Pound, 1988). In this sense, large shareholdings create their own agency problems, leading Agrawal and Knoeber (1996, p. 380) to ask "who monitors the monitors?". Large blockholders may damage a firm's performance due to their large exposure to a firm's risk (Demsetz and Lehn, 1985). Moreover, as external investors can diversify their portfolios, shareholders seem to "not be interested in directly controlling the management of any individual firm" (Fama, 1980, p. 295).

The hidden action and hidden information problems become severe. As concentrated ownership has incentives to monitor and influence management to protect their significant investments, the free rider problem is mitigated, leading to lower agency costs (Shleifer and Vishny, 1997; Demsetz and Lehn, 1985; Yafeh and Yoshio, 2003), off-setting in this way the high costs of block equity ownership. Concentrated ownership, creating liquidity problems to investors, also generates a long-term relationship between managers and shareholders (mitigating potential "short-termism" of shareholders) and increases shareholders' incentives to reduce information asymmetry (Lee and O'Neill, 2003).

**Board Structure** – Boards of directors are appointed to represent shareholders' interests and bridge the gap between outside shareholders and firms' managers (Keasey and Wright, 1993). Although all board members are supposed to work to increase shareholders' wealth, agency theory argues that non-executive directors (NEDs), because of their independence and specialised expertise, are a particularly powerful monitoring device of executive directors' actions (who are assumed to be opportunistic agents) (Rediker and Seth, 1995). NEDs are potentially effective since "outside directors have incentives to develop reputations as experts in decision control" (Fama and Jensen, 1983, p. 315). The board can be seen as an instrument by which managers control other managers. As described by Fama (1980, p. 293), "if there is competition among the top managers themselves (all want to be the boss of bosses), then perhaps they are the best ones to control the board of directors". However, boards dominated by NEDs may result in oppressive strategic actions, excessive monitoring, lack of business knowledge and real independence (Haniffa and Cooke, 2002).

The Hampel Report (1998), combining agency and resource dependency theories, emphasises that NEDs should have a monitoring function and contribute with valuable expertise to the firm. As intangible asset intensive firms require high expertise and are characterised by a high managerial discretionary power, NEDs are expected to perform a central role as governance devices in this sort of firm. Using UK data, Alves and Martins (2009) document that board structure is
consistently higher in RD firms. In contrast, Bushman and Smith (2001) argue that when accounting numbers do a poor job in reflecting the true managerial performance (which seems to occur in intangible asset intensive firms), firms may respond by placing a high proportion of inside directors on the board.

**Audit Demand** – Auditing costs are a component of the monitoring and bonding costs that investors bear (Jensen and Meckling, 1976). Agency theory argues that the propensity to demand independent audits increases with the extent of the separation of ownership from control (Chan et al., 1993). The reduction of accounting manipulation seems to play a crucial role in curbing the level of agency costs by limiting managers’ ability to deceive shareholders.

A weaker internal control system (Jensen, 1993), a lower reliability of intangible assets' financial reporting (Lev, 2001; Lev and Zarowin, 1999) and a lower observability of managers’ actions create space for managerial opportunistic behaviour (Tsui et al., 2001) in intangible asset intensive firms. So, the characteristics of intangible assets may generate a higher audit demand. In this vein, Alves and Martins (2009), Godfrey and Hamilton (2005) and O'Sullivan (2000) report a positive relationship between RD expenditures and audit fees.

3.2. Major Governance Policies Do Not Depending on the Interactions Between Shareholders, Managers and Debt Holders

**The Market for Corporate Control** – The market for corporate control is a governance mechanism through which inefficient managers are punished by losing control over the decision process (Fama and Jensen, 1983; Jensen and Ruback, 1983). As it is a costly device, it is seen as a last resource governance mechanism (Fama, 1980). Also, managers can mount takeover defences in order to make the functioning of the market for corporate control more costly.

Given the absence of markets for individual intangible assets, the diffusion of knowledge across all levels of the organisation, and the relevance of market share to dilute the large sunk fixed costs associated with most intangible assets, the market for corporate control might be more active in intangible asset intensive sectors. Risk diversification strategies can also lead to a more active market for corporate control in intangible asset intensive firms in order to create a portfolio of innovative (risky) projects. Finally, the well-known managers’ preference for “growth” and “size” seems easier to justify in a context of strong information asymmetry faced by shareholders in intangible asset intensive firms.

**Financial Analysts** – Financial analysts employed by, for example, banks and institutional investors play a key monitoring role since they influence managers’
opportunities to capture excessive (pecuniary and non-pecuniary) benefits from investors (Jensen and Meckling, 1976). Managers' decisions are closely followed by analysts and conveyed to financial markets quickly. Finally, financial analysts' activities are potentially powerful since monitoring activities should “become specialised to those institutions and individuals who possess comparative advantages in these activities” (Jensen and Meckling, 1976, p. 127-128).

Several studies address the relationship between financial analyst following and intangible assets. Empirical evidence is mixed. In the USA, Barth et al., (2001) find that analyst following is greater for firms with larger RD and advertising expenses (and larger size, growth, trading volume, equity issuance and perceived mis-pricing). Meanwhile, Barron et al., (2002) report that analysts' forecast consensus are negatively associated with firms' levels of intangible assets. They also find that analyst following complements the financial reporting system of firms with high intangible asset intensity. Finally, Wyatt and Wong (2002) find that the recognition of intangible assets on the balance sheet is associated with increased demand for analyst following. However, contrary to Barron et al., (2002) and Barth et al., (2001), they do not find a higher analyst following for intangible asset intensive firms.

**Competition in the Markets for Inputs and Outputs** – “While the product and factor markets are slow to act as a control force, their discipline is inevitable” (Jensen, 1993, p. 850). Hart and Moore (1994) develop a model under which managerial slackness is negatively related with the level of competition in the markets where firms operate, suggesting that the level of competition may act as an important constraint of managers' non-profit maximising behaviours. However, as Jensen (1986, p. 323) points out, “product and factor market disciplinary forces are often weaker in new activities and activities that involve substantial economic rents or quasi-rents”. Since intangible assets are particularly important in new activities, one anticipates that the competition in the markets for inputs and outputs is not an efficient governance mechanism in most intangible asset intensive industries.

**Managerial Labour Markets** – Fama (1980, p. 295) considers “the primary disciplining of managers comes through managerial labour markets, both within and outside the firm”. In the internal labour market, “each manager has a stake in the performance of the managers above and below him and, as a consequence, undertakes some amount of monitoring in both directions” (Fama, 1980, p. 293). In the external labour market, Fama (1980) recognises that it exercises direct pressure on firms to remunerate managers according to their performance to avoid the best managers leaving the firm and keeping the firm's competitiveness to attract highly skilled managers, who are particularly important
in intangible asset intensive industries. The external labour market works as an effective governance mechanism because, even when managers' remuneration is not linked to shareholder wealth, they have incentives to act as shareholder wealth maximisers in order to develop their reputation in external markets for managerial labour. The way managers disclose information to financial markets plays a role in the valuation of their human capital by external markets for managerial labour. For instance, given the nature of the information, firms cannot reveal management quality or R&D knowledge through public disclosure (Holland, 1998). Using UK data, he finds that “the benefits of private exchange, the limits of public disclosure mechanisms especially of financial reporting, and managerial opportunism and preferences, all combined to create this bias” (bias towards private disclosure) (Holland, 1998, p. 30). Although recognising that private disclosure is influenced by financing and control issues, the creation of favourable institutional and market conditions and by the external pressure to increase quality communication, he emphasises that managers “used inside information to maintain their company control benefits and some form of job security. In addition, exchanging private information with a network of financial institutional investors was a mean to build up reputational capital in the market for senior executives” (Holland, 1998, p. 30). These findings seem consistent with Short and Keasey (1999, p. 83) view that “much of the monitoring of companies by UK institutions takes place in a private 'behind the scenes' fashion”.

Summing up, given the intangible assets characteristics – namely the potential failure of the financial reporting system, the difficulty in accurately communicate the merits and risks of the investments and the need of very specialised expertise to evaluate managerial performance (particularly in long-term projects) – it is likely that both internal and the external managerial labour markets play a key role in intangible asset intensive industries.

4. SUMMARY AND CONCLUSIONS

This article reviews the major theoretical contributions concerning the characteristics of the intangible assets, the financial policies and the corporate governance mechanisms. It is argued that the firm-specificity (idiosyncrasy), human capital intensity, high risk and uncertainty, the absence of liquid markets and the long term nature characterising most intangible assets have impact on the levels of agency costs, information asymmetry, transaction costs, bankruptcy costs and non-debt tax shields.

Thus, it is important to understand how those distinct characteristics of intangible assets affect the allocation of rents among the key categories of stakeholders of a firm: shareholders, managers and debt holders. Consequently,
the major theories about financial policies – models based on taxes, bankruptcy costs, agency costs, information asymmetry (pecking order theory and signalling models) and transaction costs economics – and governance policies, namely agency theory and stewardship theory – are surveyed.

This review of financial and governance theories is followed by the presentation of ten major financial and governance policies. These are: debt, dividends, managerial equity ownership, external block ownership, board structure, audit demand, the market for corporate control, the market for managers, competition in the markets for inputs/outputs, and analyst following. These policies can reduce the amount of bankruptcy costs, agency costs, information asymmetry costs and transaction costs. This is because they directly depend on the interactions between firm's managers, shareholders and debt holders. Since intangible asset characteristics have an impact on the levels of agency costs, transactions costs, financial distress costs, non-debt tax shields and information asymmetry levels, they potentially influence the nature of the interactions between shareholders, managers and debt holders. Consequently, they impact upon the design of the portfolio of a firm's financial and governance policies.

Summing up, the financial and governance literature reviewed in this article suggests that the level and the nature of intangible assets seem to influence the design of the portfolio of a firm's financial policies and governance devices. Nevertheless, the nature of those influences on managers, shareholders and debt holders remains open. Also, there is not a developed theoretical framework to explore the independencies among them, particularly incorporating the impact of firms' asset structure. Most existing theories are partial and lead to conflicting predictions. Consequently, more comprehensive empirical research is needed to improve theoretical framework about the potential impact of the intangible assets on financial and governance policies.
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Resumo

Este artigo apresenta uma revisão da literatura relativa ao impacto dos activos intangíveis no desenho das políticas financeiras e de governo das sociedades. Os activos intangíveis apresentam um conjunto de características — nomeadamente, elevados níveis de risco e incerteza, especificidade — que os tornam especialmente distintos de outras categorias de activos. Estas características são susceptíveis de ter um impacto substancial nos níveis dos custos de agência de endividamento (substituição de activos e os problemas de sub-investimento) e de capital (problemas de seleção adversa e de risco moral), níveis de assimetria de informação entre accionistas e gestores, custos de transacção e as vantagens fiscais não resultantes do endividamento. O impacto destes efeitos é susceptível de influenciar a maximização da função utilidade dos gestores, accionistas e obrigacionistas, os quais mostram diferentes remunerações, níveis de diversificação, preferências de risco e conhecimento de negócio. Adicionalmente, parece provável que a importância de tais efeitos varie entre as categorias de activos intangíveis.

Palavras-chave: Activos intangíveis, políticas financeiras, políticas de governo, teoria da agência.