

SFB 649 Discussion Paper 2006-053

# Governance: Who Controls Matters

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This research was supported by the Deutsche Forschungsgemeinschaft through the SFB 649 "Economic Risk".

<http://sfb649.wiwi.hu-berlin.de>  
ISSN 1860-5664

SFB 649, Humboldt-Universität zu Berlin  
Spandauer Straße 1, D-10178 Berlin



SFB 649 ECONOMIC RISK BERLIN

# Governance: Who Controls Matters\*

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**Abstract:** *In this paper, we provide an outlook for further research on the topic of governance. We review four different approaches on the theory of the firm and discuss implications for governance, namely; nexus of contracts / agency theory, property rights / incomplete contracts, adaptation, and nexus of specific investments.*

## 1. Introduction

During the last three decades, governance issues, in particular corporate governance, have become a recurrent theme in the law, economic and organization literature. In the aftermath of Enron, Worldcom and other recent scandals, it has also become a widely publicized policy issue. The question is all the more important in the increasingly globalized world with an enhanced competition between institutional systems and, in particular, between legal orders.

The notion of “corporate governance” is proteiform<sup>3</sup>. Various definitions are available in the literature, depending, in particular, on whether the focus is on the shareholder or on the stakeholder value. For example, in their well-known survey, Shleifer and Vishny (1997) offer a very traditional shareholder perspective when they state that “corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment”. Others find this definition too narrow for an economic analysis of governance. For example, in his Presidential Address to the Econometric Society 1998, Tirole more broadly defines corporate governance as the “design of institutions that induce or force management to internalize the welfare of stakeholders” (Tirole, 2001). Also, according to Zingales (1998), governance is simply synonymous with the exercise of authority, direction,

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\* We would like to thank Oliver Fabel, Jenny Kragl, and Anja Schöttner for helpful comments and discussions. Financial support by the Deutsche Forschungsgemeinschaft through the SFB 649 "Economic Risk" is gratefully acknowledged.

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<sup>3</sup>The paper considers governance in general. However, the natural starting point refers to “corporate governance”.

and control. This perspective is clearly less restrictive than the one adopted by Shleifer and Vishny. The difference refers to the distinction between corporate finance and corporate governance.

The former approach corresponds to a narrow definition that is “preoccupied with the ways in which a corporation’s insiders can credibly commit to return funds to outside investors and can thereby attract external financing” (Tirole, 2005). Quite naturally, this idea is connected to the classical problem of the separation of ownership and control, as initially described by Berle and Means (1932)<sup>4</sup>. However, for such a corporate finance shareholder approach to be fully convincing, it would require contracts with all the other stakeholders (employees, customers, suppliers of intermediary inputs etc.) to be sufficiently complete to avoid major inefficiencies. The obvious difficulty with such an assumption is that it undermines the very justification for the existence of firms, and thus, indirectly for corporate governance. What is needed instead is a theory of governance that endogenously emerges from the theory of the firm.<sup>5</sup>

In that respect, the main difficulty is, of course, that the existence of the firm is mostly taken for granted. As noted by Coase himself in his 1992 Nobel Prize address, “the firm in mainstream economic theory has often been described as a black box. And so it is. This is very extraordinary given that most resources in a modern economic system are employed within firms, with how these resources are used dependent on administrative decisions and not directly on the operation of markets. Consequently, the efficiency of the economic system depends to a very considerable extent on how these organizations conduct their affairs, particularly, of course, the modern corporation” (Coase, 1992).

It is a fascinating moment in time to be involved in developing the theory of the firm. The public corporate government debate receives all the attention – while at the same time missing the most important points in our (theorists’) perspective. Namely, it brings together numerous theories that have been advanced over the past two decades, asking why control matters and what the decision-making processes are. Moreover, there is a growing public interest to understand the respective merits of the European-Stakeholder and the American-Shareholder

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<sup>4</sup> One can also observe that the legal representation of the firm has been considerably influenced by Berle and Means’ view. As noted by Roe: “Corporate law is in fact a standard contract that shareholders and managers can vary at will. Behind the mystification of the corporation are contracts among shareholders, managers and employees. State corporate law sets up standard form contracts that most shareholders and managers want, so that the costs of contracting will be cheap. If the standard terms-describing for example, who votes, when they vote and on what they vote, do not suit firm managers and shareholders, they revise them.” (Roe, 1994).

<sup>5</sup> Or to put it in terms of Zingales “... corporate governance raises the age-old question of what a firm is. But this question should be central to corporate governance. Before we can discuss how a firm should be governed, we need to define what it is” (Zingales, 1998).

systems. The theoretical discussion developed in this paper wants to contribute to the debate going much deeper in the understanding of corporate structures.

More precisely, the last decades have been marked by great improvements in the theory of the firm. After a slow start to Coase's (1937) seminal paper on the nature of the firm, we have lately witnessed a plethora of theoretical contributions discussing and explaining the boundary of the firm and its internal organization.<sup>6</sup> Recent articles by Garrouste and Saussier (2005) and Gibbons (2005), summarize some of the main currents in that development. Elemental arguments for the existence and organization of firms refer to theories based on asymmetric information, the existence of transaction costs, the reality of incomplete contracts and opportunistic behaviour, the ensuing importance of delegation problems, and the allocation of property rights, as well as asset specificity or the ability of "adaptive, sequential decision-making" (Williamson, 1975). In that context, we are seeking "private ordering", which entails efforts by the immediate parties to a transaction to align incentives and to craft governance structures that are better attuned to their exchange needs" (Williamson, 2002).

Asymmetric information and the ensuing need to align the parties' incentives have clearly had the strongest influence on the governance literature. The idea that, due to the division of ownership and management, governance rules (i) must decide on the allocation of decision rights between owner(s) and manager(s), and (ii) create the appropriate incentives where it allocates decisional power to management, is central to the discussion. For example, following Fama and Jensen (1983), there are four essential decision rights regarding a project; initiation, ratification, implementation, and monitoring. The first and the third are presented as typical management rights and the two others as the owners' control rights. The use of these control rights requires the implementation of a monitoring scheme, generally proxy variables. It also necessitates the design of incentive contracts that take the proxy variables to align the interest of managers to those of the owners. This question has been addressed by Fama and Jensen and others in a long list of ensuing theoretical and empirical studies under the

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<sup>6</sup> Coase was the first to note that there are a number of transaction costs to using the market; the cost of obtaining a good or service via the market is actually more than just the price of the good. Other costs, including search and information costs, bargaining costs, keeping trade secrets, and policing and enforcement costs, potentially add to the cost of procuring something via a market. This suggests that firms will arise when they can arrange to produce what they need internally and somehow avoid these costs. There is a natural limit to what can be produced internally, however. Coase notices "decreasing returns to the entrepreneur function", including increasing overhead costs and increasing propensity for an overwhelmed manager to make mistakes in resource allocation. This is a countervailing cost to the use of the firm. Consequently, Coase argues that the size of a firm (as measured by how many contractual relations are "internal" to the firm and how many "external") is a result of finding an optimal balance between the competing tendencies of the costs outlined above. In general, making the firm larger will initially be advantageous, but the decreasing returns indicated above will prevent the firm from growing indefinitely.

hypothesis of complete contracts and assuming that ex-ante negotiations between parties are feasible. As a result, these approaches emphasize the trade-off between monitoring costs and rents extracted by the managerial decision maker(s). Aghion and Tirole (1997) introduce an additional important aspect in the incentive alignment literature. The delegation of a decision right already creates incentives, albeit distorted ones, with the size of the distortion being heavily dependent on managerial interests.<sup>7</sup> Their analysis makes clear that, in some cases, owners might be better off accepting a managerial capture leading to distorted decisions rather than attempting to control all the key decisions using monitoring and incentives schemes. In this type of framework, optimal governance trades off distorted decisions against monitoring costs and rent accruing to management.<sup>8</sup>

In this literature, contracts are assumed to remain complete despite the informational asymmetries. In practice, many contracts are incomplete in the sense that they do not fully specify the division of surplus in every possible contingency, because either specification of all possible states is too costly or outright impossible. This creates an interesting distinction between decisions made *ex ante* (when the parties enter a relationship and irreversible investments are undertaken) and those made *ex post* (when the quasi rents are divided). Contractual incompleteness creates room for *ex post* bargaining. In their well-known papers, Grossman and Hart (1986) and Hart and Moore (1988) introduce an elemental modelling approach to incomplete contracts providing the corner stone of the modern property rights theory. Contract incompleteness forces parties to renegotiate when eventualities not foreseen by the contract occur.<sup>9</sup> In such a context, ownership plays an essential role by conveying residual control rights, affecting the outcome of negotiation in a systematic way. This, in turn, influences *ex ante* investment decisions and the ensuing total surplus. Maximizing total surplus then establishes who should own residual control rights.

The property rights logic has many natural intersections with the governance literature founded on asymmetric information arguments. To give an example, consider the Aghion and Tirole (1997) paper. It assumes that the owner (the principal) can freely allocate decision rights to management (the agent). However, in light of the property rights literature, it becomes questionable whether this is truly possible, or whether decision rights are bounded

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<sup>7</sup> See also Baker, Gibbons and Murphy (1999).

<sup>8</sup> A similar question can be raised regarding the question, how deep decisions should be delegated within a hierarchy. See e.g. Crawford and Sobel (1982), Dessein (2002), and Harris and Raviv (2005).

<sup>9</sup> In that literature, the outcome of a negotiation is assumed to follow from the Nash bargaining solution. In that respect, it is well known that the Nash bargaining axiomatic can be justified grounded in non-cooperative bargaining theory. See Rubinstein (1982) and Binmore, Rubinstein and Wolinsky (1986).

by the residual control rights induced by ownership. In the case where some decision rights are not explicitly alienable, Baker, Gibbons and Murphy (1999) explore the possibility of implicit delegation sustained through a reputational equilibrium. Existence of such an equilibrium is shown to depend on the interest rate level and changes in the principal's short *versus* long term profit resulting from breaking trust.

Models employed by the principal-agent and the property rights theories usually involve two players only. The restriction is generally for simplicity of analysis, but it is not quite innocuous. In particular, it seems to us to have biased some of the governance literature in favour of the conflict between managers and shareholders. Following the seminal work by Hart and Moore (1990), Zingales (1998) proposed a departure from this two-player restriction, using a similar intuition to that found in the property rights theory. His model allows for an explicit consideration of many stakeholders modelling ex-post renegotiations using the Shapley value.<sup>10</sup> In that context and in the spirit of Williamson (1985), he concludes that a governance system should be defined “as the complex set of constraints that shape the ex post bargaining over the quasi rents generated in the course of a relationship”.

In our reading, one of the most exciting new developments in the theory of the firm and the ensuing role of governance is based on the theory of adaptation, by which we mean the capacity of the organization to adjust in an environment where uncertainties are resolved over time. Adaptation is an old theme in economics. For example, Hayek (1945) already emphasized adaptation as an essential characteristic of markets<sup>11</sup>, while Barnard (1938) discussed its central role for formal organizations.<sup>12</sup> One of the first modelling approaches goes back to Simon's (1951) seminal paper concerning the employment relationship. Three recent discussion papers by Baker, Gibbons and Murphy (2004, 2005) and Levin and Rayo (2003) adapt Simon's idea to build an alternative theory of the firm. The cornerstone of the theory of adaptation is the assumption that decision rights are not only *ex ante* (as in the property rights literature) but also *ex post* non-contractible. In such a context, the allocation of control rights becomes paramount. Robertson (1940) once compared firms to “islands of conscious power like lumps of butter coagulating in a pail of buttermilk”. With this “island” view, Baker, Gibbons and Murphy (2005) describe contractual movements of decision rights

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<sup>10</sup> There is a recent literature providing a non-cooperative foundation of the Shapley value, although they might not be as striking as Rubinstein's defense of the Nash bargaining solution. See Gul (1989), Hart and Mas-Colell (1996), Evans (1996), Perez-Castrillo and Wettstein (2001), and Salas-Fumas (2006).

<sup>11</sup> Hayek clearly saw the relationship to governance. For example, he writes “the necessity of adaptation to unforeseen events ... leads to the demand that the required adjustment be brought about by deliberate guidance, which in practice must mean that authority is to decide who is to be hurt”, Hayek (1973, p. 63).

<sup>12</sup> For a general discussion, see Williamson (2002).

between firms as “bridges”. This setup allows for the development of a rich theoretical framework that permits modelling most of the hybrid governance structures encountered in practice, including strategic alliances, partnerships, joint ventures, and more. This perspective emphasizes one of the central issues in the design of governance “as an allocation of decision rights and payoff rights to the parties”, that is how the incentives could be aligned under such a structure.

The most-publicized theory of the firm is certainly based on the transaction cost theory. It seems, however, to never have been fully formalized, at least in the sense of providing a unified account of the costs and benefits of integration. As a result, even though many would agree that “corporate governance is concerned with minimizing the transaction costs of running firms”<sup>13</sup>, little formal analysis can be found. We have briefly overviewed a few theories of the firm and linked its elemental models to the governance issue. In reality, governance structures must take care of all of the above issues and more<sup>14</sup>. The authors are convinced that many important results remain to be discovered by linking and combining the different theories of the firm.

In the remaining, we discuss, in greater detail, the different approaches introduced above. We note two important caveats. First, our article is not intended as a survey, but rather as an outlook on future research embedded in the existing literature. In particular, we make no attempt to systematically include and discuss the broad governance literature. Instead, we selected what we believe provides a natural link between the historical evolution and some of today's research questions. Second, we do not provide references for or discuss empirical papers.

## **2. Nexus of Contracts**

A major development was introduced in 1972 by Alchian and Demsetz with the idea of the firm as a nexus of contracts. Though the paper predated the now standard principal-agent theory, it is best understood in light thereof. For Alchian and Demsetz, it is a “delusion to see the firm characterized by the power to settle issues by fiat, by authority, or by disciplinary action superior to that available in the conventional market”. Instead, emphasizing the defining role of team production within the firm, their analysis focuses on the need of a

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<sup>13</sup> See Mayer, inaugural lecture at the Universite Libre de Bruxelles, 2000.

<sup>14</sup> For example another interesting link with the governance question is raised by Garicano's organizational approach of the theory of the firm in terms of human capital protection (Garicano, 2005).

monitor (the manager) in order to align the respective parties' incentives. In turn, to avoid managerial shirking in monitoring, Alchian and Demsetz stress the importance that the monitor would be the residual claimant. According to this approach, corporate governance is a more complex version of standard contractual governance. It shows that, under certain types of relational arrangements, only a reallocation of property rights can overcome economic agents' propensity to be opportunistic, and focuses on the consequences of the manipulation of incentive systems.

The main authors who adopt this definition of the firm are Jensen and Meckling (1976). They agree to and further extend Alchian and Demsetz's objection to Coase's theory of the firm. In particular, they reject the importance of authority, and instead highlight the role of contracts as a vehicle for voluntary exchange. Jensen and Meckling agree with the importance attached to monitoring, but they believe that Alchian and Demsetz's emphasis on joint input production is too narrow and, therefore, misleading. In their analysis, contractual relations are the essence of the firm, not only with creditors but with suppliers, customers, workers etc. Jensen and Meckling therefore substitute, for Coase's notion of the firm, the competing conception that the firm was a nexus of contracts and, more particularly, "that most organizations are simply legal fictions which serve as a nexus for a set of contracting relationships among individuals...".

According to this conception, the firm is a nexus of reciprocal arrangements. From a theoretical point of view, the problem becomes one of identifying the optimal relationships in a context of informational asymmetries. In that respect, the major development of the principal-agent theory of the 1970s and 1980s to resolve moral hazard and adverse selection problems offered great insight. Applied to the problem of the firm, the classic model involves an agent who takes a non-contractible action to produce output (for example because the action is not verifiable by a court). In order to reduce shirking, the principal, who owns the output, contracts to share with the agent by paying a wage contingent on the realization of the output, denoted by  $y$ . The incentive contract is costly however, because any random factor affecting the realization of  $y$  makes the agent's wage payment precarious, leading to the classic trade-off between risk and incentives.<sup>15</sup> This line of reasoning naturally emphasizes and limits the governance issues to the conflict between owners and managers and the appropriate allocation of risk.<sup>16</sup>

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<sup>15</sup> For some well-known results, see Harris and Raviv (1979), Holmstrom (1979) and Shavel (1979).

<sup>16</sup> Obviously, the literature is aware that there are many other asymmetric information and incentive problems within the firm. However, as recently discussed by Mookerjee (2005) the revelation principle that has been widely used in that literature implies that centralized mechanisms usually perform as well as decentralized



For instance, Fama and Jensen (1983) observe that the characteristics of residual claims are important both in distinguishing organizations from one another and in explaining the survival of organizational forms in specific activities. Their analysis explains the special features of the residual claims of different organizational forms as efficient approaches to controlling agency problems. Concerning the governance of firms, they theorize that the board of directors is the highest internal control mechanism responsible for monitoring the actions of top management. They argue that outside directors have incentives to carry out their monitoring tasks and not to collude with top managers to expropriate stockholder wealth. Therefore, the inclusion of outside directors increases the board's ability to monitor top management effectively in agency settings arising from the separation of corporate ownership and decision control.

Attempts to generalize the standard principal-agent framework to multi-dimensional asymmetric information raise additional difficulties however, in particular, the multi-tasking. For example, the value of a firm does not only depend on current production, but on other variables which are much more difficult to assess. Such variables are the factual quality of patents and knowledge within the firm, the "mood" among team members of the organization, etc. In other words, performance measures used to align incentives will, in general, not fully reflect the principal's interest. In such a context, high-powered incentives may in fact be counter-productive, introducing congruence concerns. This issue has early been raised by Kerr (1975) in a non-technical paper overlooked by the mainstream literature. In 1991 the issue resurfaced in two important papers by Holmstrom and Tirole, and Holmstrom and Milgrom. Analytically, their model assumes the existence of a verifiable performance measure  $p$  which is not perfectly aligned with the principal's objective  $y$ . Now, for the sake of argument, suppose incentive schemes are linear, i.e.  $w = s + bp$ . As in the classic agency model, a large value of  $b$  will create strong incentives, but now the agent's incentives are to produce a high value of  $p$ , not of  $y$ . When both objectives are incongruent, the principal is forced to offer weak incentives if he wants to control the activity directly. This observation helps us to understand why real-life employment contracts often differ from those predicted by earlier incentive theories. For example this the case, when the agent must perform several equally important tasks, but only some of the tasks generate an (imperfect) observable signal (measurable output). In such an environment, the principal should not provide too much

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incentive schemes. In other words, the entire organizational problems of owners can be understood as the requirement to correctly align the incentives of management, thereby indirectly solving all the other informational issues.

incentive to perform the tasks generating the observable signal. If he does, the agent will be induced to focus his effort and attention on these tasks and, as a consequence, will forgo the other tasks that do not generate any observable signal. To solve this dilemma, Holmstrom and Milgrom show that the principal must design a compensation scheme which pays a fixed wage to the agent and contains no incentive component. Their model provides an intuition for the fact that piece rates are relatively rare in manufacturing and why, when used, they are frequently accompanied by careful attention to monitoring of the quality. In addition, the model explains why it would be dangerous to provide incentives for good performance on individual projects, in a context where individuals are also expected to partake in a team effort, assuming the latter is difficult to assess.<sup>17</sup>

There are constellations where the foregoing problem is better resolved by an alternative organizational form, based on outsourcing, where the agent, instead of the principal, becomes the owner of the productive asset. Intuitively, if the agent owns the asset, he does not only receive a wage based on measured performance, but also benefits from the remaining value of the asset after production has taken place. In other words, the agent's effort can be aligned using two sources of incentives rather than one. This illustrates that incentive contracts are not the only source of incentives. The Holmstrom-Tirole model shows that the allocation of control rights may be just as important as contracts in structuring incentives within (and between) firms. In conclusion, thinking of governance through the lens of "the firm as a nexus of contract", as initially advocated by Alchian, Demsetz, Fama, Jensen, Meckling and others, leads us right back, via the multi-tasking problem, to the importance of "who controls".

### **3. Property Rights and Incomplete Contracts**

The current property rights view of the firm was initially developed by Grossman and Hart (1986) and Hart and Moore (1990). In their framework, the firm is defined as a collection of physical assets that are jointly owned and as an institution that interacts with other economic agents in an environment where contracts are incomplete. In such a context, ownership matters because it confers residual control rights, which assign the right to determine how the asset is used in circumstances not covered by existing contracts, customs, or the law. This definition has the additional merit of differentiating between a simple contractual relationship

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<sup>17</sup> Lazear (2000) describes the transition from salaries to piece rates at a firm that installs auto windshields. The data show convincingly that output increased, due to two predicted effects: Piece rates provided stronger incentives for hard work and also induced self-selection toward a workforce that benefited from those incentives.

and a firm. Since the firm is defined by the non-contractual element (the allocation of ownership), corporate governance – as opposed to contractual governance – is defined by the effect of this non-contractual element. Consequently and not surprisingly, in the past decade the corporate governance literature has focused on the allocation of ownership. More specifically, some problems like hold-up have been discussed in detail.<sup>18</sup> On the other hand, this definition has the drawback of making all stakeholders, other than the owner of physical assets, unimportant to an understanding of the firm.

Grossman, Hart and Moore's theory of the firm is one of organizational boundaries reflecting the trade-offs surrounding the allocation of residual control rights. To review the underlying argument of that theory, we follow Hart's (1995) Clarendon Lectures. It develops a simplified version of the main idea in a framework with only two physical assets and two agents whereby, independently of the allocation of property rights, the agent must undertake an action. For the sake of argument, we will refer to the agent's actions as investment in human capital.

The timing of the game is as follows. First, the two parties negotiate over the control of the respective assets (and, thus, over the residual control rights). There are different possibilities; either each party owns one of the assets, or agent 1 or agent 2 owns both assets. Second, the parties simultaneously decide on an action  $a_i \in A_i$  at cost  $c_i(a_i)$ . Third, the parties observe both the action vector  $a = (a_1, a_2)$  and the state of the world  $s \in S$ . Fourth, the parties negotiate over which decision  $d \in D$  should be implemented and over the size of a transfer payment  $p$  from party 2 to party 1.<sup>19</sup> Fifth, the decision and the transfers resulting from negotiation are implemented inducing the respective payoffs,  $U_1(a, s, d) + p, U_2(a, s, d) - p$ .

The key departure from foregoing models is that ex-ante contracts which would condition payments on the parties' actions (or a proxy) are assumed infeasible. Consequently, the actions  $(a_1, a_2)$  and the payoffs  $(U_1, U_2)$  are non-contractible. In contrast, the decision  $d$ , which was assumed non-contractible in the second stage, is taken to become contractible at the negotiation stage – i.e. after the state of nature has been revealed, but before the decision is actually implemented.<sup>20</sup>

The reasoning developed follows from the observation that the allocation of control rights in the first stage also establishes the allocation of surplus at the negotiation stage. At this node

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<sup>18</sup> This explains why some authors claim that the theory of the firm has become too narrowly focused on the hold-up problem and the role of asset specificity (Holmstrom and Roberts, 1998).

<sup>19</sup> Since  $p$  can become negative, this assumption is without loss of generality.

<sup>20</sup> This point was recently emphasized by Baker, Gibbons and Murphy (2004).

of the game, property rights play a key role by defining the respective threat point (i.e. the parties' utility if negotiation were to fail). Typically, negotiation between the parties is represented through a Nash-bargaining game.<sup>21</sup> Rational players will anticipate the outcome of the game and invest accordingly in order to maximize their own payoffs. An important aspect of the Nash-bargaining is that the parties undertake the efficient decision, conditional on the respective investments and the realization of the state of nature, but regardless of which party controls the decision. Because investments influence the parties' respective threat points, it also affects transfer payments at the negotiation stage. Accordingly, the  $a_i$  and, thus, the overall surplus, are indirectly determined by the initial allocation of control rights. As a result, the property rights theory requires that the allocation of property rights (in this context governance) should be chosen to maximize the total surplus.

The foregoing digression suggests a few immediate conclusions. One example might be if the investment decision of one party is insensitive to the fact that parties should not own either of the assets. Specifically, suppose that one of the parties only needs to invest in general human capital while the other must invest in specific human capital. Clearly the latter, rather than the former, should own both assets.

Formal writing of the model by Baker, Gibbons and Murphy (2004) allows further conclusions. At the negotiation stage the parties know the action vector  $a$  and the state  $s$ . The (conditionally) efficient decision

$$d^*(a, s) = \arg \max_{d \in D} U_1(a, s, d) + U_2(a, s, d)$$

induces payoffs  $U_i^*(a, s) = U_i(a, s, d^*(a, s))$ . Suppose party  $i$  controls the asset, and, thereby, the residual decision right. To calculate the respective threat points at the bargaining stage, party  $i$ 's decision if negotiation fails is denoted  $d_i(a, s)$ . Thus,  $d_i(a, s)$  maximizes party  $i$ 's own utility. That decision induces the threat points  $U_j^i(a, s) = U_j(a, s, d_i(a, s))$ ,  $j = 1, 2$ , and the total surplus  $U_1^i(a, s) + U_2^i(a, s)$ . In general, we would expect

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<sup>21</sup> The use of the Nash-bargaining solution is in part problematic. As is well-known, the Nash-bargaining approach stems from cooperative game theory. Models that intertwine cooperative and non-cooperative games often use Binmore, Rubinstein, and Wolinsky (1986) to provide a non-cooperative foundation of the Nash-bargaining solution. The argument is not fully convincing, as in a complete non-cooperative game, the bargaining strategies may themselves intertwine with parts of the remaining game. For a discussion of this point see Watson (2002).

$$U_1^*(a, s) + U_2^*(a, s) > U_1^i(a, s) + U_2^i(a, s), i = 1, 2$$

as represented in Figure 1. It is precisely the resulting potential surplus which creates incentives for the parties to negotiate at the bargaining stage.

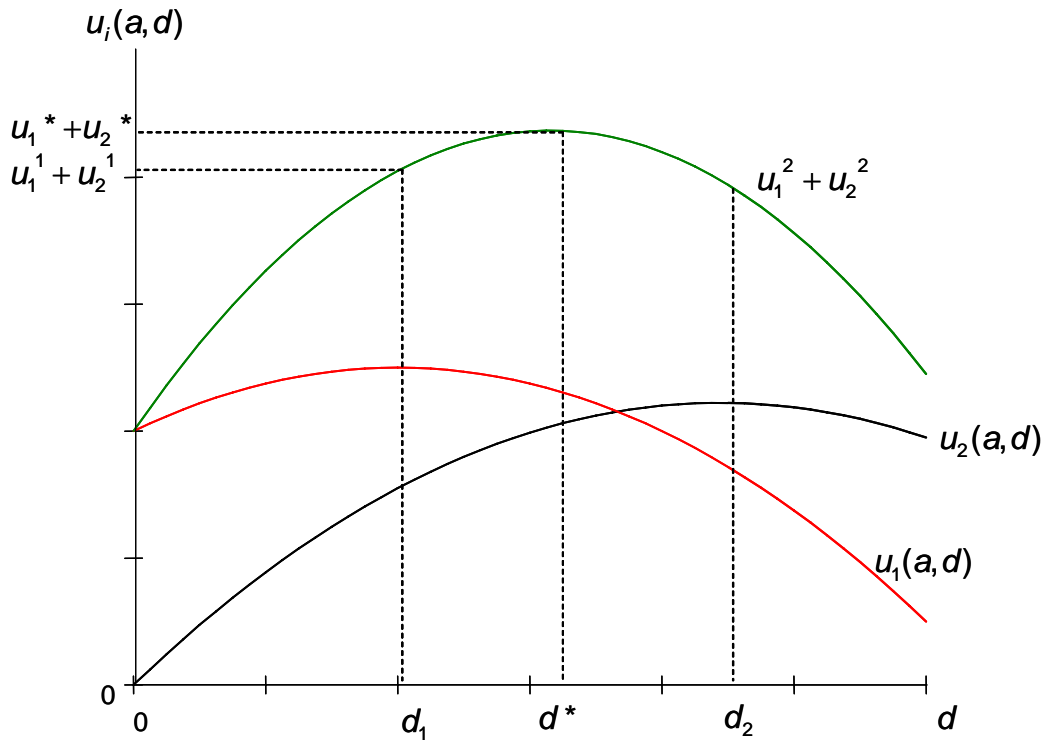


Figure 1: Investment Incentives

Following Baker, Gibbons and Murphy (2004), suppose that the parties agree on the Nash-bargaining solution, i.e. they choose  $d$  and  $p$  to solve

$$\max_{d \in D, p} [U_1(a, s, d) + p - U_1^i(a, s)]^{1/2} [U_2(a, s, d) - p - U_2^i(a, s)]^{1/2}$$

where  $p$  is the negotiated transfer payment from party 2 to party 1 for which the controlling party  $i$  agrees to undertake decision  $d$ . It is easily verified that the first-order condition for  $p$  yields:

$$p = \frac{1}{2} \left[ U_2(a, s, d) - U_2^i(a, s) \right] - \left[ U_1(a, s, d) - U_1^i(a, s) \right]$$

from which it follows that the decision  $d$  solves:

$$\max_{d \in D} \left( \left[ U_2(a, s, d) - U_2^i(a, s) \right] + \left[ U_1(a, s, d) - U_1^i(a, s) \right] \right)^2$$

But since the  $U_j^i(a, s)$  are independent of the decision, it follows that whichever party  $i$  controls the asset, he will implement the decision  $d = d^*(a, s)$ . Altogether, this proves that the parties bargain to the efficient decision, conditional upon the observed actions and the realized state, regardless of asset ownership.

Nevertheless, ownership and, thus, control matters, despite the fact that it does not affect decision making at the bargaining stage. To see this, notice that in state  $s$  party  $j$ 's net payment when the other party has control and vector  $a$  has been invested is:

$$NP_j^i(s, a) = \frac{1}{2} \left( U_j^*(a, s) + U_k^*(a, s) \right) + \frac{1}{2} \left( U_j^*(a, s) - U_k^i(a, s) \right) - c_j(a_j)$$

The first term involves the efficient total surplus,  $\left( U_j^*(a, s) + U_k^*(a, s) \right)$ , whereas the second involves the threat point differential,  $\left( U_j^*(a, s) - U_k^i(a, s) \right)$ . Using this terminology, party  $j$ 's investment decision has a half-strength incentive to maximize total surplus. However, it also has a half-strength incentive to maximize the difference between threat points.

In this framework, it becomes possible to analyze who is the more appropriate party to maximize total surplus. Following Baker, Gibbons, and Murphy (2004), it appears that the half-strength incentives to maximize the efficient total surplus are irrelevant. These incentives exist regardless of who owns the asset, so optimal asset ownership is determined entirely by the threat point terms.

In the model, it is interesting to identify a governance structure, such that the existing half-strength incentives from total surplus closely approximate the missing half-strength

incentives, in order to maximize the difference between the threat points. How well it is possible to succeed in this question depends on the details of the model. The threat point terms could create incentives that are too weak, too strong, or just right. Furthermore, in a multi-task setting, these incentives could be well-aligned or misdirected with the maximized total surplus.

Finally, the property rights approach does not allow for any other changes in incentives and behaviour of the transacting parties when the relationship is brought from the market inside the firm (vertical integration vs. outsourcing). Thus, it neglects differences between market transactions and internal organization other than simply a change in relative bargaining power between self-interested managers. However, the objective functions possessed by managers and the incentive and payoff structure that they face are different for managers within a firm, as compared to managers in separate firms. One of the key tasks of management is to develop monitoring and financial incentive arrangements within the firm that induce the managers and employees to pursue the interests of the firm rather than the interests of a hypothetical independent division of the firm producing for its own account (Williamson, 1985, Holmstrom and Milgrom, 1990). These incentive arrangements include compensation contracts that partially tie compensation to overall firm performance and the effects of employee behaviour on promotion opportunities and continued employment. In short, other things equal, the incentive and ability of a manager within a firm to exploit specific investments of another division is different from what it would be, if the managers were managing two independent firms. Monitoring behaviour and the costs and distribution of information are also likely to be different within a firm than between independent firms.

A recent article by Baker, Gibbons and Murphy (2002) exploits the combination of theories of the firm based on the property rights and on the incentive contract approach in a repeated game environment. Their model allows distinguishing between four possible governance forms: spot outsourcing, spot employment, relational outsourcing, and relational employment. The paper derives many interesting results. In particular, it provides a nice explanation as to why firms cannot mimic the spot market outcome after bringing a transaction inside the organization even under a relational equilibrium. Specifically, they prove that the renegeing temptation is always too great. More importantly, it shows that depending on some of the underlying parameters, each governance form may Pareto-dominate the others, and how the choice of governance interacts with the incentive contract. For example, their model provides a natural explanation as to why incentive contracts are “higher powered” in relational outsourcing contracts than in employment contracts.

## 4. Adaptive Organizations

The perspectives adopted by the preceding approaches are not completely satisfying. They assume that contracting for a decision takes place either *ex ante*, as in the agency perspective, or *ex post*, as in the property rights approach. However, as noted by Gibbons (2005), contracting for a decision may not be feasible at all, and optimal governance may emerge from contracting for control instead. In other words, in absence of *ex-ante* and *ex-post* contracts for a decision, the delegation of decision rights can become the only possible alternative.

An appealing way to interpret some recurrent provisions in the assignment of decision rights is in terms of mechanisms aimed to guarantee the best possible adaptation of the parties. This emphasis on adaptation goes back to early contributions by Simon (1951) and Williamson (1975). As noted recently by Williamson, the study of governance has focused on problems like bounded rationality or opportunism, but “the lesson for the science of contracts is different: all complex contracts are unavoidably incomplete. For this reason, parties will be confronted with the need to adapt to unanticipated disturbances that arises by reason of gaps, errors and omissions in the original contract” (Williamson, 2002). It has regained attention in organization theory due to recent papers by Baker, Gibbons and Murphy (2004, 2005) and Levin and Rayo (2003). Meanwhile, empirical works have also flourished, studying contractual provisions aimed to offer automatic adaptation mechanisms to govern the relationship between independent firms.

In the remaining of the section, we briefly review the “contracting for control” argument developed by Baker, Gibbons, and Murphy. In a line of papers on the subject, they explain that “control matters because it will be used, not just ... as a bargaining chip” as in the property rights literature. Instead, governance structures are designed to directly induce the most efficient behaviour *ex post* in an environment where contracts cannot. To model the idea, the authors extend the idea of adaptation studied by Simon (1951) to capture the design of organization and, in particular, the shifting of decision rights across fixed boundaries of firms.<sup>22</sup>

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<sup>22</sup> However, Simon’s approach (which is cast as a theory of employment, rather than a theory of the firm) is quite different because it concerns a situation where contracting is possible *ex ante*. Two parties choose between (a) negotiating a decision before uncertainty is resolved or (b) allocating authority to one party (the “boss”), who can then make a self-interested decision after uncertainty is resolved. Simon calls the latter an employment contract. Under such a contract, the subordinate faces a trade-off between flexibility and exploitation: She can sacrifice flexibility by locking in a decision now, or she can risk exploitation by allowing the boss to decide later.



Under the timing of their model parties first negotiate over control of decision rights. For the sake of argument, suppose there are only two parties  $A$  and  $B$ , and one decision right. However, the idea easily extends to multiple parties and decision rights. Second, the parties observe the state of the world,  $s$ , drawn from a set  $S$  according to a known distribution  $p(s)$ . Just as in the Grossman, Hart and Moore environment, it is assumed that parties cannot write contracts conditioning decisions on the realization of  $s$  or a proxy thereof. Next, the party with the control right chooses a decision,  $d$ , from the set  $D$ . In contrast with the Grossman, Hart and Moore framework, it is assumed that at this stage of the game the parties cannot negotiate. Instead, if party  $i$  controls the decision right, then in state  $s$  she will choose the decision  $d_i(s)$  that maximizes her own utility, i.e. in a non-repeated game that maximizes  $U_i(s, d)$ . Consequently, depending on which party has control over the decision right, the organization will either implement  $d_A(s)$  or  $d_B(s)$ . Finally, the parties receive their respective payoffs.

Instead of allocating the decision right to one of the players, the parties could also agree *ex ante* on a state-independent decision  $d^*$ . That decision would obtain from maximizing the expected joint surplus, i.e.

$$d^* = \arg \max_{d \in D} E_s [U_A(s, d) + U_B(s, d)]$$

In this most simple environment, the best governance, which determines whether the parties should negotiate and agree on  $d^*$ , or allocate the decision right to either one of the parties, follows from the optimization of the total surplus:<sup>23</sup>

$$TS = \max_{i=A,B} E_s \{U_A(s, d_i(s)) + U_B(s, d_i(s)), U_A(s, d^*) + U_B(s, d^*)\}$$

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Simon provides plausible conditions (roughly, that the parties' payoffs depend importantly on tailoring the decision to the state, and that the parties' preferences regarding such tailoring are not too divergent) under which it is optimal for the parties to choose the employment contract.

<sup>23</sup> This is the case in Simon's framework where  $A$  is taken to be an employer and  $B$  the employee (Simon, 1951). The analysis focuses on whether it is more advantageous to give authority to the boss or have the parties locking in an unconditional decision. Simon's perspective is completely satisfactory. Indeed, if the parties can negotiate a decision *ex ante*, they presumably can renegotiate a decision *ex post*. However, allowing *ex-post* negotiation leads to first-best decisions as discussed in the foregoing section.

In their paper on strategic alliances, Baker, Gibbons, and Murphy use and extend the above framework to derive an elemental model of hybrid organizations.<sup>24</sup> The intuition is as follows. There are four assets  $\{A,a,B,b\}$  and initially two firms. At the outset firm  $A$  owns  $\{A,a\}$  while firm  $B$  holds the remaining assets  $\{B,b\}$ . The assets  $A$  and  $B$  should be interpreted as generating the core business of the respective firms, while  $a$  and  $b$  are assumed profitable only if used in a coordinated fashion. Now take from the foregoing model the assumption that deciding on a coordinated use of the latter assets is not contractible. It suggests different organizational forms. For example, the assets could be sold to a third party – total divestiture – or both assets could be acquired by one of the parties – acquisition – or each party could simply decide on asset usage – competition etc. Finally, the model can be embedded in a repeated game structure allowing for reputational equilibria. Altogether, depending on some of the underlying parameters of the model, the framework provides a possible foundation for numerous forms of strategic alliances.

Note that this approach supposes that decision rights can be extracted (or "alienated") from their native assets. In practice, there are different inalienable decision rights, i.e. residual rights that remain attached to the asset after all alienable decision have been removed. The extracted decision rights can move across boundaries of firms without changing asset ownership. Licence agreements or franchising are the most evident examples of alienable decision rights. The problem consists in identifying efficient governance structures (i.e. "allocation of decision and payoff rights to parties through either contracts or asset ownership"). Of course, the situation differs according to the nature of the firm's environment: static or relational. In the second case, the governance structure has to align incentives of parties to achieve efficient adaptations as states of the world are realized. From this point of view, it becomes clear that relationships between firms, in other words "strategic alliances", significantly improve the performance of a governance structure. Of course, repeated interactions and relationships can occur between as well as within firms.

## 5. Nexus of Specific Investments

This approach is founded on a broader definition of the firm as a nexus of specific investments, a combination of mutually specialized assets and people. Following Alchian and Demsetz (1972) and Jensen and Meckling (1976), Zingales (1998) considers that the residual right of control over an asset always increases the share of surplus captured by its

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<sup>24</sup> See Williamson (1985, 1996) and Menard (2004) for a thorough discussion of hybrid organizations.

owner - who has the opportunity to walk away with the asset - but does not necessarily increase the marginal incentive to specialize. If, as it is likely, a more specialized asset has less value outside the relationship for which it is specialized, then specialization decreases the owner's outside opportunity and thus the share of the quasi-rents. Owning a physical asset, then, makes an agent more reluctant to specialize it. As a result, the residual right of control is best allocated to a group of agents who need to protect their investment against ex post expropriation, but who have little control over how much the asset is specialized.

In another paper, Zingales (2000) states the implications for the field of corporate governance when considering the firm as a nexus of explicit contracts and as a nexus of explicit and implicit contracts, respectively. In the simple form of a nexus of explicit contracts, the firm cannot be worth more than the sum of the individual contracts that compose it. Since the only residual claim is equity, it states shareholders' supremacy in the form of maximizing shareholder value as the single objective. By defining the firm as a nexus of explicit and implicit contracts, reputation becomes important. Zingales gives the example of a firm with the reputation of rewarding employees on the basis of their contribution to the firm. Relying on this reputation, employees will make investments which are different from those they would have made in another firm. Assuming that these investments are valuable, the firm, thus, is worth more than the sum of its parts. Given that implicit contracts belong to the nexus, stakeholders that are usually considered being in the environment of the firm, are now becoming an integral part of it. Building on the firm as a nexus of contracts, Zingales stresses the importance of human capital by defining a firm as "a nexus of specific investments: a combination of mutually specialized assets and people". This definition of the firm considers all parties who are mutually specialized, be they suppliers, workers, or customers. Although this definition does not match with the legal definition, it represents the economic essence of a firm as a network of specific investments that cannot be replicated by the market. The sources of these specific investments are all corporate stakeholders. In contrast to Alchian and Demsetz (1972) and Jensen and Meckling (1976), however, Zingales also points out that contracts with stakeholders are usually incomplete, thus, leaving room for ex-post bargaining over the quasi-rents generated by the firm.

In practice, this means that two conditions must be met for a governance system to be necessary. First, the relationship must generate some quasi-rents. In the absence of quasi-rents, the competitive nature of the market will eliminate any scope for bargaining. Second, the quasi-rents must not be perfectly allocated ex ante. If they are, there is no scope for bargaining either.

Yet the bargaining over the ex-post rents, which Zingales defined as the essence of governance, is influenced by the existing legal structure. A corporation in principle is just an empty legal shell. What makes a corporation valuable are the claims the legal shell has on an underlying economic entity, namely the firm. While the legal shell and the economic entity often coincide, this is not always the case. For this reason, Zingales defines corporate governance as the complex set of constraints that shape the ex-post bargaining over the quasi-rents generated by a firm.

Many problems that fall into the realm of corporate governance can be (and have been) profitably analyzed without necessarily appealing to such a broad definition. Nevertheless, all the governance mechanisms discussed in the literature can be reinterpreted in light of this definition. Allocation of ownership, boards of directors, capital structure, labor market competition, managerial incentive schemes, organizational structure, pressure from institutional investors, product market competition, takeovers, can all be thought of as institutions that affect the process through which quasi-rents are distributed. The contribution of this definition is simply to highlight the link between the way quasi-rents are distributed and the way they are generated. Only by focusing on this link we can answer fundamental questions such as who should control the firm.

As postulated in Zingales' definition of the firm, specific investments are of eminent importance for understanding stakeholders' role in the rent generation process of a firm. According to Williamson (1975) a firm's assets can be classified into two types: firm- or relation-specific assets and general assets. The former group comprises physical or human assets that are more valuable in the context of a particular firm than in any other context. Since relation-specific assets cannot easily or costlessly be redeployed to another setting, such firm-specific investments lock parties into the relationship to some degree. Hence, the parties in the relationship are susceptible to ex-post opportunism. This opportunism can take the forms of hold-up or moral hazard, both putting the quasi-rents of the trading partners at risk. The value of general investments, on the other hand, does not vary across different uses and is therefore not subject to ex-post opportunism.

Finally, the broad definition of Zingales considering the firm as a nexus of specific investments has a considerable advantage. It focuses on a governance system that affects the incentives to invest or seek power, thereby altering the marginal payoffs that these actions have in ex-post bargaining. Unlike the nexus of contracts approach, this definition explicitly recognizes that a firm is a complex structure that cannot be replicated instantaneously. And

unlike the property rights view, this definition recognizes that all the parties that are mutually specialized, workers, suppliers, customers, belong to the firm.

## 6. Concluding Remarks

In the foregoing sections, we have emphasized the role played by parties in the purposeful design of a governance structure guiding transactions between themselves. The approach in terms of a nexus of contracts considers that contractual relations are the essence of the firm and proposes to study optimal arrangements in a context of informational asymmetries. According to this view, incentives contracts focus on the conflict between owners and managers. It emphasizes the feature of residual claims emanating from organizational forms. More recently, the analysis of multi-tasking problems with incongruent performance measures shows that the allocation of control rights may be just as important as contracts in structuring incentives within (and between) firms.

In contrast, the property rights approach strips the firm of most of its organizational features and focuses on how ownership and the ensuing allocation of residual control rights affects the outside options of self-interested economic agents engaged in bilateral trade. In an environment of incomplete contracts, who controls matters instead of the contractual element. From a governance perspective, the theory requires that the allocation of property rights should be chosen to maximize the total surplus. Combining the two foregoing theories allows a comparison of organisational forms based on the interactions between incentive contracts and the allocation of property rights.

In section 4, we discussed a more recent approach based on adaptation. The framework assumes that contracting for a decision is not possible, even *ex post*. As a result, control matters not just as a bargaining chip as in the property rights literature, but because delegation of decision rights becomes the only form of governance. The approach supposes that decision rights can be extracted (or “alienated”) from their native assets. The main conclusion is that relationships between firms, “strategic alliances” in Baker, Gibbons and Murphy's terminology, improve the performance of governance structure.

Finally, in the foregoing section we introduced Zingales' approach considering the firm as a nexus of explicit as well as implicit contracts. This characterization does not necessarily coincide with the legal definition, but it corresponds to the economic essence of a firm: a network of specific investments that cannot be replicated by the market. The central argument

is that all the stakeholders matter: parties that are mutually specialized, workers, suppliers, customers, have to be considered when defining optimal governance structure.

Altogether, we concur with the stakeholder value as emphasized by the adaptation theory and that of nexus of specific investments. Reality of business is characterized by a great diversity of situations. Central elements include the feasibility and timing of contracting, the costs associated to monitoring in the case of incentive contracts, the degree of alienability of decision rights, the allocation of property rights, the specificity of activities, etc. The search for optimal governance structure guiding a transaction between parties or a set thereof consists in identifying the combination of these elements that maximize the total surplus of the organization. At this stage, many questions remain open. How does an organization succeed in gaining power different from standard market transaction? Which variables affect this power? In particular, what enhances, or reduces that power? Answering these questions has become essential for any further advancement in understanding governance.

Finally, we would like to note that the discussion should not be limited to the parties' ability to design intelligent governance structures themselves. In reality, transactions between parties are drawn in an institutional, legal, standardized framework of social norms, interacting with the parties' design problem and, in many cases, shaping the different solutions. The obvious examples are the enforcement of contract terms which often depend on the courts and the underlying legal system. Less obviously, procedural rules concerning the burden and the standard of proof, and, more generally, all legal constraints that shape the bargaining power of different parties, also impact indirectly on the governance design (e.g. Bental and Demougin, 2006 and Deffains and Demougin, 2006). From a theoretical point of view, legal and institutional structures represent external control mechanisms in contrast to internal mechanisms discussed in this paper. The interaction between the two kinds of mechanisms provides a natural outline for future research. The importance of these mechanisms has recently been investigated by institutional empirical studies. A notable illustration is given by the Law and Finance program initiated by La Porta, Lopez de Silanes, Shleifer and Vishny (1998) that focuses on the importance of legal origins in the protection of investors and in the financial structures of the firms. In this paper we have considered a perspective of governance directed by organizations. It is clear that other views have to be considered, like a political economy perspective (Pagano and Volpin, 2005).

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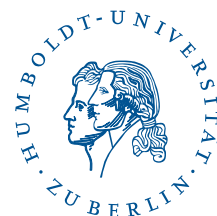
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This research was supported by the Deutsche  
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