CORPORATE GOVERNANCE AND CONTRACTUAL GOVERNANCE: A MODEL

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Abstract - In this paper we propose a formalised model which describes the trade-off problems faced by a firm desiring to create a structure of governance that deals both with the problems of supervising the work of its managers (corporate governance) and with the transactional problems arising from its contractual relations with other stakeholders, in particular suppliers and clients (contractual governance). The public company and the business group stylise two alternative solutions to this problem. Our model recognises the fact that there may be different mechanisms of governance in different industries, historical periods or countries, and that these may be modified as a result of technological shocks, changes in the rate of growth in demand, or innovations introduced by some companies in the production chain.

Key words: business groups, public company, relationship specific investment, agency
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1. Introduction

Economic theory has provided different ideas on the nature of the firm and on the aim of an organizational form. As Jensen and Meckling (1976) have stressed, the firm can be viewed as a "nexus of contracts" among different stakeholders, both internal and external. The stakeholders collaborate in the firm's production in return for a claim on its cash flow: the workers demand their wages, the shareholders their dividend, the banks demand interest on their loans and repayment of their capital, the suppliers prompt payment of their invoices, and the state its dues in the form of taxes. Other groups then come into play, such as the customers, who expect goods that meet the quality standards promised, and others besides. As these claims are not only numerous but often divergent, a conflict thus arises at the top of the company. The aim of an organizational form is therefore to manage such a conflict.

Nevertheless, the firm is also a device for managing problems of different nature. According to the contractual view by Williamson (1975, 1985), if in a buyer-supplier relationship parties must sink relationship-specific investments before trading, *ex-post* they may be in a situation of bilateral monopoly. This may cause opportunism and so an inefficient trade. The problem of an organizational form is therefore that of finding a satisfactory equilibrium between markets and hierarchies and between bargaining and contracting.

The market has provided different modes of resolution for such problems, mainly the public company in the Anglo-Saxon world and the business group (in its different forms) in continental Europe and Japan. These two organisational forms are very different from many points of view. Among them, however, one in particular is theoretically appealing. In fact, the former seems an organisational form that focuses its interest on the problems of the conflict between managers, financial creditors and shareholders, while the latter seems more concerned with problems relating to trade among different companies in the production chain and in the input market, aiming to identify the conditions that will ensure the continuity of its trading relations. In other words, the public company is a form of managing a typical Jensen and Meckling (1976) agency problem, while the business group relates to a typical Williamson (1975, 1985) transactional problem (Goto, 1982).

On the other hand, an efficient "global governance" of a company requires not only the minimisation of agency costs - and hence, an adequate structure of corporate governance - but also the minimisation of transactional costs - and hence an adequate structure of contractual governance (a term introduced by Kester, 1992). In this paper we propose a model that aims to shed light on this issue, showing the trade-offs existing between the minimisation of a manager-sharehoder conflict through the takeover mechanism and the maximisation of the positive effect of a long-run customer-supplier relationship.

The basic idea is the following. A firm sells a product that requires a constant effort in research into the components, which are provided by a supplier. The component is an experience good and requires an initial cost for the installation of a laboratory which is relationship specific and thus sunk. The work of the purchasing firm managers is supervised through the threat of a takeover. The level of the threat is decided by the incumbent shareholders, because they choose the percentage of votes to be controlled, i.e. choose how much tight must be their control (Demsetz and Lehn, 1985). Let us consider the case of a few institutional investors that control the relative majority of the votes of a company. If they

reduce their shares they increase also the probability of takeover, and therefore the threat for the managers.

On the other hand, as a consequence of the takeover, new controllers would increase the probability of a withdrawal from the supply contract, thus damaging the supplier (the "breach of trust" of Shleifer and Summers, 1988). He therefore discounts this danger and requires *ex ante* a higher price for the commitment to the research. If the value of the commitment is high, it could be the case of an organizational form, such as the business group, that minimizes the probability of change of control. On the other hand, if the value of the commitment is small it could be the case of a public company.

We will show how any optimum solutions for the purchasing firm are not general in character, but specific to the characteristics of the markets to which the firm belongs: markets, for example, with a high rate of growth are likely to require governance structures different from those in decline. On the other hand, countries in which for exogenous reasons a specific organizational form is widespread are more likely to foster the development of certain sectors. A link between characteristics of the markets and organizational forms in both directions can be found also, among the others, in Fama and Jensen (1983), Demsetz and Lehn (1985), Jensen (1989), Franks and Mayer (1992, 1995), Kester (1992).

This analysis also provides us with a tool for studying an important phenomenon currently to be seen in the markets. In fact, the two principal models for solving problems of governance - public company and business groups - are drawing closer together. In this paper, therefore, we wish also to consider the problems that may arise in a process of this kind.

2. The base model

Our model sets out to describe the nature of the trade-offs between models of governance that focus alternately on manager-shareholder conflicts (corporate governance) or on purchaser-supplier relationships (contractual governance). At a formal level this is inspired by the literature on product quality in the case of an experience good (Klein and Leffler, 1981; Shapiro, 1983), with the introduction of some variants.

It may be useful initially to use as a hypothesis a situation of bilateral monopoly between the manufacturer of an end product and the supplier of a component, between whom there is not necessarily any link of any kind (for example, a common business group).

In order for the end product to have the specifications demanded by the market, it is necessary for the supplier to invest constantly in research into the component. The producer is able indirectly to ascertain the efforts of the supplier since the quality of the component improves as a result of the investment. This is possible, however, only after purchase. The component has, in fact, the nature of an experience good[1]. Hence it is only in t+1 that the producer can discover if the supplier has invested in time t[2]. Moreover, the purchaser expects that if there is

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[1] We exclude also the possibility of a successful recourse to a court.

[2] The use of more complex informative mechanism changes the results only marginally.

evidence of research in time t, then there will also be further research in t+1. There is thus a mechanism of expectations that is purely adaptive but, as we shall show later, these are perfectly rational in equilibrium.

To clarify the argument further, let us suppose that in each period only one unit is produced. This allows us to express the marginal cost functions in relation to the research effected alone, and not to the quantity produced. The supplier's total production cost c_t is thus given by the sum of the research costs c_r and the operating costs c_0. The research costs consist, for example, of laboratory tests carried out on all the pieces produced (variable cost) and a leasing charge on the equipment contained in the laboratory (non-sunk fixed cost). Finally, the installation of the laboratory itself involves an initial cost C which is relationship-specific and thus sunk.

The manufacturer of the end product stipulates a contract that provides for a series of unit purchases at a price p for an unspecified time[3]. The length of each interval t between one purchase and another is defined as the time necessary to produce the component and coincides with the "life" of the good itself in the purchaser's production process. It therefore also coincides with the time necessary to assess the actual correspondence of the component to what has been requested. This simplification may, however, be removed (see below).

Furthermore, there is no penalty for either party upon withdrawal from the contract. The purchaser, however, advises the supplier that at the first unsatisfactory delivery he will avail himself of the right of withdrawal, subject to payment of the said delivery (the lack of research is only noted when the good may no longer be returned). The first order thus takes place "blind", as there is no way to verify *ex ante* whether the laboratory where the tests will take place has actually been set up, or anyway whether the installation is sufficiently good to supply the required output.

The supplier is also subject to the risk that the purchaser will withdraw from the contract without true and just cause, even if the research is carried out. The probability of this happening is g_v. This can be due, for instance, to the fact that only a signal of the quality can be observed. The probability increases, however, to g_n in the event of a takeover (or proxy fight), the probability of which is s. It is supposed, in fact, that the new controllers set themselves the problem of renegotiating all the existing contracts and that therefore the probability of withdrawal increases (the "breach of trust" of Shleifer and Summers, 1988). In this event the value of the whole investment in the laboratory is lost. The probability of withdrawal without true and just cause is thus equal to:

[1] $q=g_v(1-s)+g_n s$.

The parameter s, however, does not affect only the threat of withdrawal, but also - though in a simplified manner - the model of governance that will be chosen by the purchaser's controlling shareholders. The probability of takeover in fact is a function of the shareholder spread and this is chosen by the controlling shareholders. In fact, controlling shareholders choose how

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[3] This contract is perfectly equivalent to a series of purchases with no long-term commitment. It may be useful, however, to consider it in the context of long-term relationships as this highlights the problem of the supplier's reputation.

much tight must be the control (% of votes), then they choose also the degree of threat. Let us consider the case of a few institutional investors that control the relative majority of the votes of a company. If they reduce their shares they increase also the probability of takeover, and therefore the threat for the managers. In our model, we can therefore suppose that the shareholders influence the parameter s. Finally, this is consistent with Demsetz & Lehn (1985): shareholders concentration matters.

A high level of s is so peculiar of a public company, while a low level of s is peculiar to an organizational form where the control is tight, typically a business group.

This choice is important. Clearly, a low s value corresponds to a greater willingness on the part of the supplier to relationship specific investment and hence, for the purchaser, the possibility to optimise contractual relations. With a high s value, on the other hand, sacrifices are made at contractual level, but there is an attempt to subject the managers to the closest possible scrutiny of the market for corporate control.

On the other hand, the problem of supervising managers is not soluble only in terms of a takeover threat, but also by means of other incentive mechanisms for management. In our model, however, the same results are obtained if the incentive mechanisms used are injurious to the supplier: one may think, for example, of a management remuneration structure linked to short-term performance, and therefore potentially damaging for long-term contractual relations. Thus, the parameter s can be interpreted in a wider sense.

Let us suppose therefore that the operating costs of the purchaser are a *decreasing* function of the rate of takeover threat s:

[2] $h = h(s)$

As the threat of being removed increases, in fact, the managers increase their commitment, and operating costs fall: in other words we come closer to the limit of the production function[4].

If there were not the possibility of unwarranted withdrawal, the intertemporal profit of the supplier would be equal to:

[3] $(p-c_o-c_r)(1+d+d^2+d^3+....) - C = (p-c_o-c_r)/(1-d) - C$

where d is a discount factor equal to $1/(1+r)$, and r is the rate of interest. If on the other hand we incorporate the possibility of withdrawal, [3] becomes:

[4] $(p-c_o-c_r)(1+z+z^2+z^3+....) - C = (p-c_o-c_r)/(1-z) - C$

where z is equal to the new discount factor which incorporates the possibility that the supply relation is broken:

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[4] Managers increase their commitment if face heavy costs with new controlling shareholders. In the USA for instance firing is a likely consequence of the takeover and this can explain why the takeover threat is view as an effective monitoring device.

[5] $z = (1/1+r)(1-q)$.

In view of these conditions, if in equilibrium there is to be, on the supplier's part, the intention to supply a good that incorporates a research activity, this must not provide him with less profit, i.e. that:

[6] $(p-c_o-c_r)/(1-z) - C \geq (p-c_o)$.

Moreover, if the purchaser is willing to purchase the good, the price agreed must not exceed the utility (u) linked to it in the production process:

[7] $p \leq u$.

[6] is satisfied if the saving achieved by not investing in research,

[8] c_r+C ,

is less than the loss of reputation rent, equal to:

[9] $(p-c_o-c_r)(z+z^2+....) = (p-c_o-c_r)(z/1-z)$,

which represents the present value of the profit flow that there would be between t+1 and infinity by supplying a good with research. This is true if:

[10] $p-(c_o+c_r) \geq (c_r+C)(1-z/z)$.

As in the models relating to the quality of the product, in general terms supply with research thus demands that the price exceeds the marginal costs: there must be a premium function of the fixed and variable costs of research and of the discount rate[5]. Otherwise the best strategy suggests supplying the component in the early period without research - while letting it be assumed that the research has actually been carried out - and subsequent exit from the market[6].

Considered in more detail - and specifically with reference to the mechanisms of governance, which are what interests us most - the model suggests a number of important consequences; and others will follow once we remove the hypothesis of a bilateral monopoly and consider other market contexts.

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[5] The equilibrium price could then be determined through a Nash bargaining between the two bilateral monopolists.

[6] The problem of trust in the research effort is dealt with in this context in terms of reputation mechanisms. Alternative mechanisms have been proposed by Sen (1976, 1987), with the concept of the "value for its own sake" of the non-opportunist action and, more generally, by mechanisms of "corporate responsibility" (Stiglitz, 1985).

a) In view of the existence of the installation cost, the higher this is, the more the risk of withdrawal involves high costs for the supplier[7]. For certain values of the parameters the supplier could even expose himself to the risk of loss. The greater (a) the probability of breach of trust (whether on the part of the old or the new control group) and (b) the probability of takeover, the higher the price must be in order for the contract to be entered into.

It follows that the method of supervision via takeover has a cost for the end manufacturer proportional to the gap between g_v and g_n. Hence it is not the presence of the takeover in itself that has an effect, but the consequences that this has on implicit contracts. If g_v were equal to g_n the takeover rate of the purchaser would not affect the supplier. The direct effect of takeover is therefore only that of increasing the probability of the more unfavourable event from the supplier's point of view, i.e. a new control group for the purchaser.

The cost of takeover is not limited to this, however. Increasing the equilibrium price also increases the probability that this exceeds the utility that the purchaser gains from it. It follows that the transaction will not be able to take place in that [7] is not respected. The end purchaser will thus have to be satisfied with a product which may offer lower performance.

The same results also allow us to consider some arguments of comparative statics. For example, an exogenous change in the technology may mean that the supplier is asked to increase his research commitment: the required investment C becomes C+ΔC. In this case a change in the governance mechanisms, such as a reduction in the rate of takeover s, may permit an increase in the research commitment with a lower price rise.

b) On the other hand a rise in the rate of takeover does not necessarily have negative effects. Indeed, [10] - which is fundamental to the motivation for contractual governance in that it defines the conditions for a long-term relationship with the production chain - is an increasing function of the rate of takeover; [2], on the contrary - which is fundamental to the motivation for corporate governance - is hypothesized as a decreasing function of the same (Figure 1)[8].

We may thus identify an "optimum" governance according to the rate of takeover threat desired by the shareholders, or alternatively to the desired rate and price of research. Let us call the purchaser A and the supplier B, and let us suppose for the sake of simplicity that A does not have to do research and that, like B, it produces only one good per period. Further let us suppose that the good is sold on the end market without any other supplies from other firms. The profits of A will be equal to the difference between the price and the costs:

[11] $P_A = p_A - c_A$.

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[7] The higher the relationship specific investment - in relation to output and to variable costs - the higher the commitment to carry out research. The commitment, however, is rewarded with a higher price.

[8] The presence of trade-offs is also clear if one considers that in business groups stability of control - and thus the low threat of takeover - is obtained partly through cross holdings with different groups which cement contractual relations.

The costs are given by adding together the price of the supply from B and the production costs h, both functions of the rate of takeover threat s. Clearly the supply price from B also depends on the research costs[9]:

[12] $c_A = p_B(s, c_r, C) + h(s)$.

A's price on the other hand depends on the presence of research in the intermediate input from the supplier B[10]:

[13] $p_A = p_A(c_r, C)$.

Let us assume also that $p'_A > 0$ and $p''_A < 0$.

The profits to maximise are therefore:

[14] $P_A = p_A(c_r, C) - [p_B(s, c_r, C) + h(s)]$.

The conditions of first order demand first of all that the partial derivative of [14] with respect to s is equal to zero, and thus that the marginal contribution to the reduction of operating costs of the takeover rate is equal to the marginal cost required in order to obtain a supply with research:

[14a] $-h'(s) = p'_B(s, c_r, C)$.

Moreover, that the partial derivative with respect to the research costs of B is also equal to zero and hence that the marginal revenue offered by the market price for the research commitment is equal to the marginal cost of the research itself:

[14b] $p'_A(c_r, C) = p'_B(s, c_r, C)$.

The two conditions therefore allow us to define an indifference function - at equal profits - between a governance structure oriented to agency problems and one oriented to transactional problems. The function, assumed conventionally to be concave, is described in Fig. 2.

c) Lastly, [10] also gives indications with regard to the specifications of the goods purchased. It suggests that in different sectors there are different mechanisms of governance. In particular, it draws attention to the fact that the length of the "life" of the component affects the equilibrium premium. This is obtained indirectly from the positive relation that exists between the interest rate and the premium for producing with research. Other things being equal, higher interest rates are reflected in longer production processes - i.e. the interval t - and hence in a more extended "life" of the good. Intuitively, if the intervals between purchases are longer, and thus the "life" of the good more extended, it takes longer for the purchaser to realise that he is being deceived: the lack of research may be discovered, for example, only

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[9] We drop operating costs and rate of interest because they do not influence the equilibrium.

[10] We thus assume in this step that the end users cannot be deceived as to the quality of the product. There is, for example, a guarantee. This simplification, though inconsistent with what we have assumed up to now with regard to the diffusion of information, does not affect the substance of our argument.

when the component purchased gets old. The producer is therefore tempted to deceive. The premium (and the price) necessary to induce him to continue to produce with research is therefore higher.

In the presence of goods with a "long life" it may thus be important to have a structure of governance that acts in the opposite direction - i.e. which reduces the price that ensures research is carried out. A structure of governance with low recourse to takeover, for example, may have this positive effect. On the contrary, for goods with a "short life" a high probability of takeover is less injurious to contractual relations.

This result is clearly conditional upon identifying the length of "life" with the production time. The model could be complicated, however, by inserting a production time, a length of "life" for the component in the purchaser's production process and a length of life for the end product, the performance of which depends partly on the component. The purchaser could thus also withdraw from the contract if the end user reports that the product does not meet the required performance because of the component. It would then be possible to insert a parameter that identifies the "complexity" of the good and thus the difficulty of identifying any defects resulting from a lack of research. In short, for "complex" and/or long-life goods a high probability of takeover is more injurious to contractual relations, while the opposite is true for "simple", short-life goods.

3.   Some extensions of the base model

At this point we may modify the base model, extending it to other market contexts.

Multiple purchasers. The purchaser may be not single but multiple. We move therefore from a situation of bilateral monopoly to one of monopoly. However, this does not affect the results described above if investments continue to be relationship-specific and information circulates freely among the different purchasers. With regard to the first point, there is no reason to think that the characteristics of the laboratory should change. If the product (and the quantity of research required) is the same, the number of purchasers has no effect. It would make a difference if variants on the basic product were requested.

The second point, however, is more controversial. With the simple information model proposed (the discovery of the deception after one time), the number of purchasers has no effect. The first purchaser may be deceived but the second possesses information from the first. Everything changes, however, with more complex information models - for example, if a single purchase is not sufficient to realise the research commitment and the relations between the competitors are not "collaborative" and so information with regard to the supplier's deception does not circulate freely[11]. In general terms, if there is any friction at an information level this affects the discount rate, so that the time necessary to discover the deception lengthens and the price for supplying research increases. As the interval in time over which deception can be practised is extended, therefore, there is less likelihood that the strategy of

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[11] For example, if there is a sequence of 10 purchasers and the discovery of the deception requires at least two purchases, 11 periods are needed before the fly-by-night strategy is noticed, whereas in the case of a bilateral monopoly and free information only 2 purchases are required.

effecting research will become optimum. The effects of this on the structures of governance are not secondary, and are similar to the case of the goods with a "long life": a low recourse to takeover can reduce the premium necessary to supply the research.

Competition with other suppliers. In the presence of other suppliers and of competition the model changes in that not only does the demand function become infinitely elastic[12], but the prices resulting from [10] are clearly not in equilibrium: the existence of an irremovable gap between prices and marginal costs acts in fact to stimulate entry.

In order for there to be an equilibrium at the level of price competitionl, we must first of all assume that there are no sunk entry investments, i.e. that C=0 (Shapiro, 1983) and this is inconsistent with our model[13]. Following the approach of Klein and Leffler (1981), the price that is determined in [10], in the presence of equality between the two members of the inequality, may be considered in any case as being in equilibrium if we assume the presence of non-price competition, consisting of relationship specific investment. At a level of strict price competition the market would thus be in disequilibrium; at a more general level, on the other hand, the presence of investments for entering the market, which are sunk, means that at that price there are no new entrants.

Rising demand. If the demand is increasing with time, the reputation rent is higher (because of the quantity), and the price which ensures research becomes lower. Intuitively, it becomes less opportune to renounce the flow of future profits. If demand increases at a rate w and we define that $f=1+w$, the reputation rent of [9] becomes:

[15] $(p-c_o-c_r)(z+z^2+...)(f+f^2+...) = (p-c_o-c_r)(z/1-z)(f/1-f)$.

In a strict sense, in this context, the "growth" consists of selling the same product at the same pace over time, but with a price and variable costs growing steadily in the same proportion, as if the product became steadily larger. The productivity of the laboratory would also increase, in that the installation costs C do not change, at least for a certain period of time.

The conditions for the existence of research in [10] become:

[16] $p-(c_o+c_r) \geq (c_r+C)(1-z/z)(1-f/f)$.

Since $(1-f)<0$, the price necessary to satisfy the inequality [16] is thus lower than in the case of [10]. Hence, if demand increases, the supplier will be able to invest even if the rate of takeover of the purchaser rises: the effect of an increase in f, in fact, has the opposite sign to that of an increase in the discount rate z (including the rate of takeover threat).

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[12] The model can nevertheless be applied with some variations to the case of sloped demand. The existence of the price that guarantees research also depends in this case on the elasticity of demand.

[13] The model by Shapiro suggests that the price charged by any new entrants on the market who have no reputation is equal to $p_e<p$ and equal to that of the product without research, $p_e=c_0$. Hence there is in the first period a cost arising from the reputational investment and negative profits; later, however, suppliers see the fruits of their reputation rent and positive profits.

This result is consistent with Jensen (1989): in declining sectors the public corporation is not a good solution because free cash flow agency costs arise.

Supplier controlled by a group and in competition with other suppliers. If there are n purchasers and n suppliers (Figure 3), and if each supplier is controlled by a purchaser and is in competition with other suppliers (i.e. he sells to more than one purchaser), the model shows first of all a reduction in operating costs with respect to the case of a bilateral intra-group monopoly relationship. The competition of the subsidary with firms from outside the group submits the managers to the scrutiny of the product market, encouraging them to move the costs towards the limit of the production function. The effect is thus similar to that furnished by the market for corporate control, by the rate s, but without the negative effects at a level of contractual relationships. With lower operating costs, the reputation rent would become higher and thus the price that ensures research may become lower, to the advantage of all purchasers, including those outside the group.

Secondly, the expected rate of withdrawal decreases with respect to relationships on the market alone: there is, in fact, more contractual certainty. At equality of price the commitment to research may thus increase. At the same time, however, the commitment to research could be subject in some cases to a less stringent scrutiny (with more complex information models than the one originally proposed, more purchasers reduce the probability of prompt discovery of any deception) and may thus increase the possibility of success for a fly-by-night strategy. These negative consequences, however, are only theoretical when group control is able to impose research[14]. There are thus clear advantages at both contractual governance and corporate governance level.

We may finally draw attention to some other results which derive directly from what has already emerged.

Profit differentials between sectors. In the context that we have described, a situation comes about in which in equilibrium there are different ratios between price and marginal cost in different sectors because there are relationship specific investments. In this case, as well as greater costs for supplying the research there are also prices that give *greater profits*. A similar effect is obtained with different rates of demand growth: sectors where demand is rising have a lower difference between prices and marginal costs - and hence *lower profits* - than sectors where demand is stable. Asymmetric information thus give rise to potential differences in profits.

The presence of different mechanisms of corporate governance means that the presence of differentials is amplified. Sectors which for some reason have purchasers with a high recourse to takeover - thus exposing suppliers to the risk of losing their relationship-specific investments - also have *greater profits* in equilibrium. The same argument may be applied in a temporal context - an exogenous change in the rate of takeover or in the propensity to breach of trust - or in a cross-country context. The model suggests, for example, that national systems which give priority to mechanisms of corporate governance are structurally more competitive in some sectors (for example, where there is little need of long-term contractual relationships) than in others. Moreover, there is evidence of asymmetry in the competitive

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[14] We observe a similar effect in the case of vertical integrated firms. In this case the investment in R&D is monitored through the hierarchy and not through the market.

factors, in one case of price competition and in the other of non-price competition (on quality).

The spread of changes in mechanisms of governance in one company through the production chain. The model reveals the possibility of a diffusive effect of the choices of governance structure in one company on all those upstream or downstream of it, an effect that acts both on costs and prices and on mechanisms of governance (Figure 4).

If a company towards the end of the production chain changes its model of governance - for example, if a family controlled company becomes a public company - the rate of takeover threat s is altered. The company will thus benefit from the point of view of the incentives for management to maximise profits; at the same time, however, this will have an effect upstream, in that it will create greater contractual uncertainty for the company's suppliers. If the supplier immediately upstream is a monopolist and if it is the last link in the supply chain (Fig. 4, point 1), it could simply charge a higher price to carry out its research. In this case, there will be no effect on its model of governance. However, it could also reduce its operating costs by increasing the threat of takeover for its own managers. So, also its model of governance could change.

Owing to these two different strategies, if there is a chain of monopolists (each supplying the other, Fig. 4, point 2), the move of the first supplier is not neutral. If it charges a higher price, there is no reason for the second (third, etc.) supplier to charge a higher price too, because its purchaser enjoys of the same expected profit flow. So, there is not a chain reaction. But if the first supplier increases its takeover rate, the second supplier will be involved in the chain reaction in prices or models of governance.

In conditions of competition among suppliers (Fig. 4, points 3-4), the process becomes even more complicated. If a supplier increases its own rate of takeover, this could also affect its competitors at the same production stage, accelerating the chain reaction.

In a multi-purchaser context (Fig. 4, point 5), if one purchasing company modifies its structure of governance, this will also affect its competitors at the same production stage. The suppliers upstream will in fact have an expected level of demand (with reference to more than one potential customer) that is on average less (more) subject to withdrawal. Hence there will be more (less) incentive to invest in research, with positive (negative) effects on all the purchasers, even if they have not changed their rate of takeover threat.

Lastly, if the changes take place in a company further upstream in the production chain whose rate of takeover provides no threat to its customers there is nevertheless an effect downstream which passes this time only through prices. A greater degree of control over operating costs, achieved as a result of an increased takeover threat for the company's own managers, allows a reduction in prices and thus in costs for the purchasers. Subjected to this cost shock, the companies downstream may thus react according to market conditions. Hence this may trigger a mechanism that leads progressively to a new equilibrium in the production chain.

Relationship-specific investment within the company. The results of the model may be applied, *mutatis mutandis*, if we assume that the suppliers are "inside" the company, i.e. that they are suppliers of services such as, for example, labour, whether managerial (at a middle

management level) or executive. If the supply of these services requires a relationship-specific investment, the same arguments used above apply. A middle manager, for example, may give the maximum contribution to production if he invests in knowledge about the technical problems of the production stage for which he is responsible. In order to offer this quality service a premium will therefore be required, and it will be damaged if all the contracts are renegotiated with a change in the company's control group. Therefore, sectors needing a greater "involvement"of the workers are damaged by the use of the takeover threat (Franks and Mayer, 1992). On the other hand, top management - if exposed to the risk of takeover - will press more strongly to obtain in any case an efficiently produced output. It is therefore possible that the lower commitment of middle management to innovation will be offset.

4.   Concluding remarks

In this paper we have tried to introduce a simple model in which the company has the problem of dealing with agency problems between managers and shareholders while at the same time dealing with contractual relations in the production chain. Thus it has been possible to examine which paths are possible to pursue and the consequences of such choices, in a manner at once more abstract but also more rigorous than current literature on the subject.

The presence of governance mechanisms that give priority either to problems of agency or to contractual problems alters the competitive equilibria on the product market. They make the firms more or less competitive with regard respectively to price and non-price factors. Even under conditions of perfect competition in the different markets we may therefore observe a differentiation in the price-cost margin. Furthermore, modifications to the mechanisms of governance also involve a continuous change in the relative positions of the companies, caused directly by their intervention on their own governance structures and indirectly by the diffusive effects resulting from the actions of their competitors, customers and suppliers.

At the same time changes in the rate of growth of demand and in its elasticity, in technology (thanks to innovation), in production techniques (because of changes in the relative prices on internal markets or as a result of a different international division of labour), in product specifications (greater or lesser complexity and expected life), in the degree of social cohesion (greater or lesser propensity on the part of managers and business partners to see cooperation as having intrinsic value), on the financial markets (a rise or fall in the cost of borrowing and thus in the discount rate to apply to the model), and in the degree of development of the stock market all have potential effects on the governance structures.

A period of convergence between alternative models of governance, as at present, in which the public company model changes in order to assimilate some of the characteristics of the business group model and *vice-versa* is thus full of implications for the individual production systems in their entirety and for the specific models of sectorial specialisation in different countries.

Figure 1 - The choices of company shareholders in terms of trade-offs between mechanisms of governance that give priority to the problem of contractual governance versus suppliers, with respect to mechanisms of governance that give priority to the problem of corporate governance versus managers

price (supplier)

operating costs (purchaser)

takeover threat (purchaser)
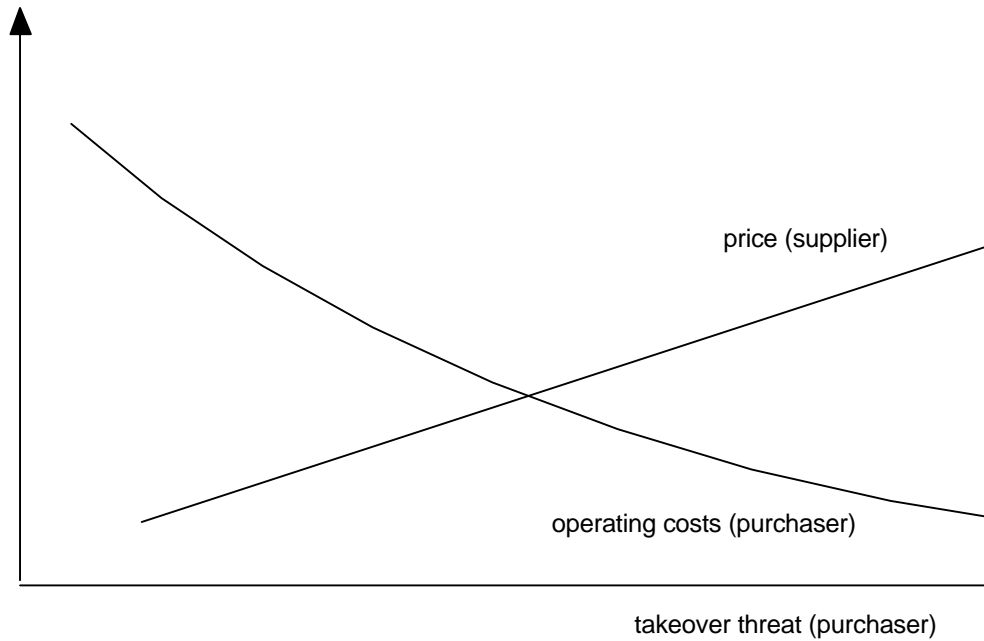
Note: the supplier's price constitutes a cost for the purchaser, who must choose the optimum structure of governance given a certain degree of research required by the market.

Figure 2 - Function of indifference, at parity of profits, between mechanisms of governance that give priority to the problem of contractual governance versus suppliers, with respect to mechanisms of governance that give priority to the problem of corporate governance versus managers
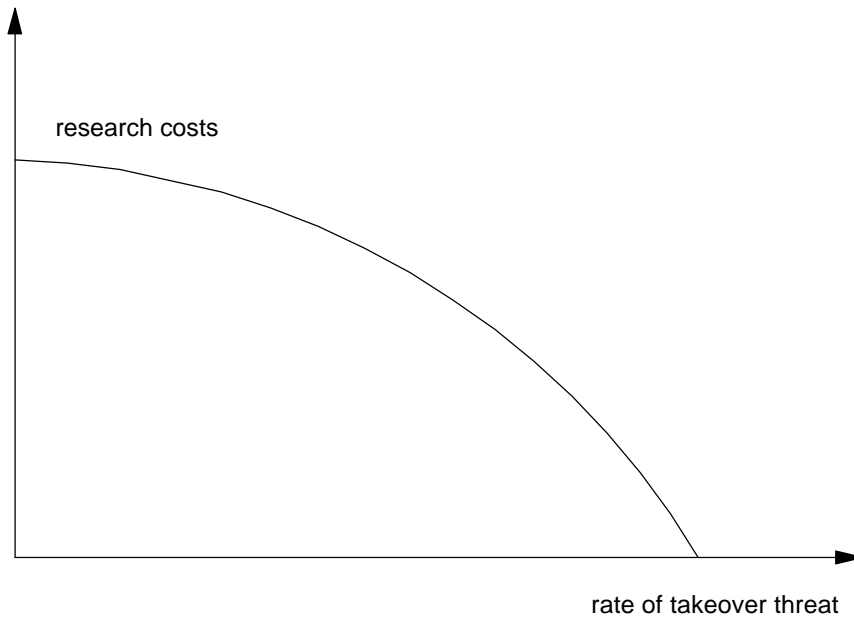
research costs

rate of takeover threat

Figure 3 - Business group model with subsidiaries that are suppliers in bilateral monopoly with the firms of the same group, with respect to subsidiaries in competition with the subsidiaries of other groups
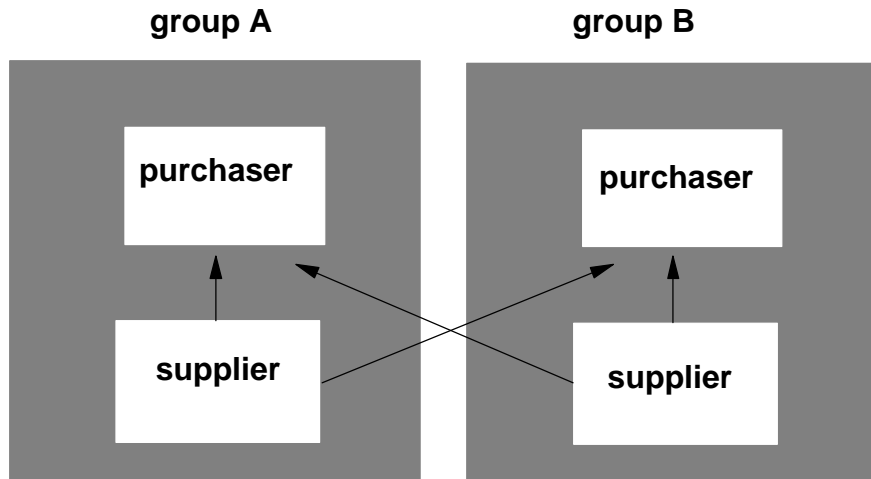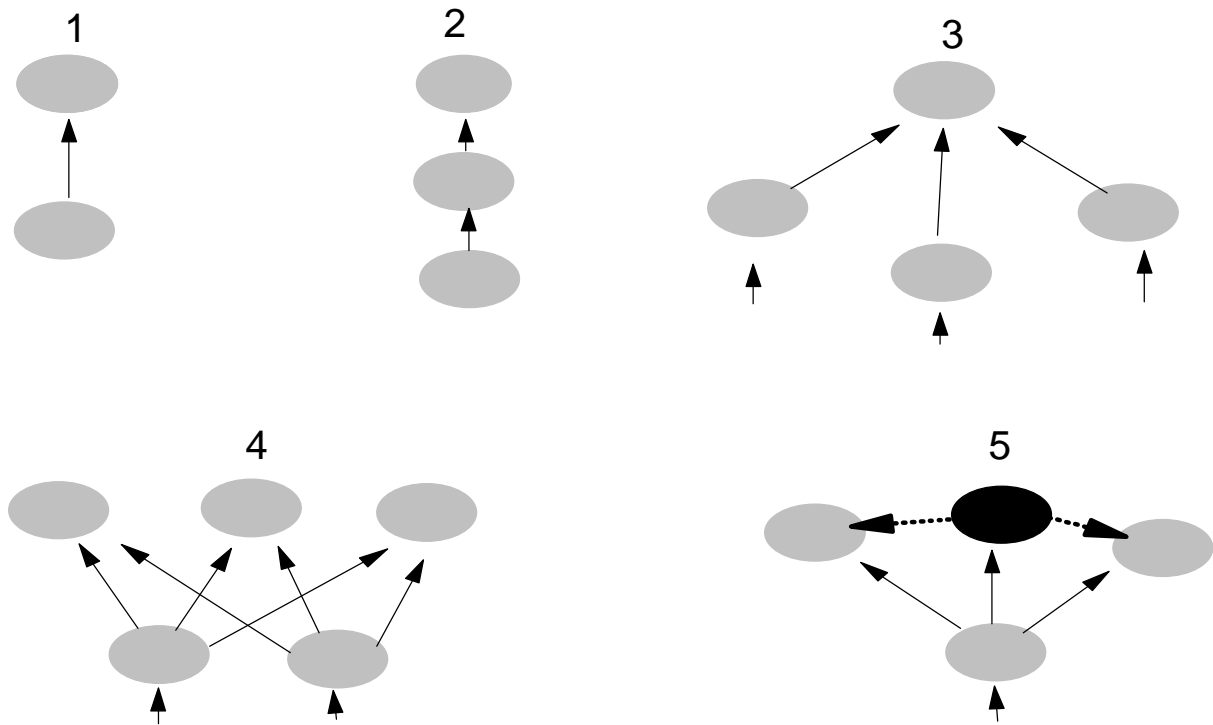
Figure 4 - Diffusive mechanisms in the production chain and on the markets of the organisational choices of a firm

Case 1: bilateral monopoly with the supplier as the last link in the supply chain
Case 2: bilateral monopoly with more than one suppliers in a chain
Case 3: monopsony with suppliers in competition
Case 4: competition between purchasers and between suppliers
Case 5: monopoly with a purchaser that changes its own governance mechanisms (dark ellipse and broken arrows)

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NON TECHNICAL ABSTRACT

The market has provided different organizational forms for the company, mainly the public company in the Anglo-Saxon world and the business group (in its different forms) in continental Europe and Japan. These two organisational forms are very different from many points of view. Among them, however, one in particular is theoretically appealing. In fact, the former seems an organisational form that focuses its interest on the problems of the conflict between managers, financial creditors and shareholders, while the latter seems more concerned with problems relating to trade among different companies in the production chain and in the input market, aiming to identify the conditions that will ensure the continuity of its trading relations. In other words, the public company is a form of managing a typical Jensen and Meckling (1976) agency problem, while the business group relates to a typical Williamson (1975, 1985) transactional problem (Goto, 1982).

On the other hand, an efficient "global governance" of a company requires not only the minimisation of agency costs - and hence, an adequate structure of corporate governance - but also the minimisation of transactional costs - and hence an adequate structure of contractual governance (a term introduced by Kester, 1992). In this paper we propose a model that aims to shed light on this issue, showing the trade-offs existing between the minimisation of a manager-sharehoder conflict through the takeover mechanism and the maximisation of the positive effect of a long-run customer-supplier relationship.

The model shows that changes in the rate of growth of demand and in its elasticity, in technology (thanks to innovation), in production techniques (because of changes in the relative prices on internal markets or as a result of a different international division of labour), in product specifications (greater or lesser complexity and expected life), in the degree of social cohesion (greater or lesser propensity on the part of managers and business partners to see cooperation as having intrinsic value), on the financial markets (a rise or fall in the cost of borrowing and thus in the discount rate to apply to the model), and in the degree of development of the stock market all have potential effects on the governance structures.

Moreover, the presence of governance mechanisms that give priority either to problems of agency or to contractual problems alters the competitive equilibria on the product market. They make the firms more or less competitive with regard respectively to price and non-price factors. Finally, modifications to the mechanisms of governance also involve a continuous change in the relative positions of the companies, caused directly by their intervention on their own governance structures and indirectly by the diffusive effects resulting from the actions of their competitors, customers and suppliers.