What is a (network-) firm?

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Abstract
What is a firm? The firm is a real entity insofar as it "acts" as a durable and cohesive whole that cannot be reduced to an aggregation of its parts or members. A weighty ontological distinction must be drawn between this theoretical treatment of the firm and both the two dominant economic conceptions of the firm as a "nexus of contracts" or as a "collection of non-human assets". This chapter intends to depart from a critique of the fictionist view of the firm endowed with the legal personality to then propose some ontological foundations of the firm as a real entity. Some old legal views of the corporation are mobilized to complete the conceptual vacuity of economic theories of the firm. Afterwards, an empirical application to the "network-firm" is provided. What is a network-firm? This complex productive structure is a single real entity that succeeds in perpetuating a unified and integrated whole of human and non-human constituents although any member owns privately the value-chain. Hence the political dimension of the network-firm is emphasized to highlight the role of power relationships due to the creation of an institutional and organizational glue that holds the whole together. Ultimately some law and economics of the network-firm are proposed, notably as regards with employment contract and limited liability.

Keywords
Theories of the firm, network-firm, legal fiction, aggregate, real entity, power.

1 Introduction

A theory of the firm is an attempt to define firm's nature. In essence, this is traditionally done by recognizing juridical persons that are distinct from individual

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human beings and that can own assets in their own name (Hansmann and Kraakman, 2000). The firm is the creation of law that creates capacity to enter into legal relations and the entity upon which the law confers such legal personality is a legal person. The dominant economic theories of the firm do not lead to something else, denying the fundamental differences between contract and organization and reformulating the firm as a "nexus of contracts" (Jensen and Meckling, 1976) or as a "collection of non-human assets" (Hart, 1995). Hence the firm is nothing more than a fictitious and artificial entity that, used for convenience as a shorthand expression, serves as a nexus for a set of contractual relationships among individual factors of production. The firm is reduced to contracting parties and transaction costs (Bratton, 1989). The firm does not exist as such. Only the noun "firm" exists. But the firm is real and it is more than a legal institution or an "aggregate". The legal theory of the firm has become a topic of strong intellectual debate between legal fiction and real entity approaches of the corporation. Reducing the firm as a nexus of contracts is not suitable to disclose its real nature. The main step for theorizing the firm is to recognize it as a real entity, *i.e.* as a cohesive and durable whole of integrated human and non-human constituents that is other than a sum of its parts and members. The real single entity "firm" is perpetuated by an institutional and organizational glue that holds the complex whole together.

After defining what a firm is, this chapter intends to define what a network-firm is. The network-firm is a real entity that makes a single productive system between legally autonomous firms durable through a hub-firm that has the *de facto* power to control the whole without recourse to equity ownership. The nature of the relations among the firms of the network can make the determination of the boundaries of that entity difficult because the economic integration of the network-firm transcends the legal boundaries of the firm (Rajan and Zingales, 2000). But it is not because the boundaries of the network-firm are vague that this one cannot be theoretically treated as a real entity. Therefore, it is clear that the *de facto* integration of the whole cannot be reduced to contract and ownership but must be extended to power arising "*wherever the economic dependence of one party upon the other effectively requires compliance with the dominant party's wishes*" (Collins, 1990a: 734). Power is not provided by ownership but by control to critical resources. The more critical resources, the stronger the power (Salancik and Pfeffer, 1974) and the glue. Control is less and less a monolithic concept. The emergence of such complex organizations implies that law would have to develop an understanding of network logic that relies on multiple constructs which would come from different origins as economics, legal theory and other social sectors involved (Teubner, 2002). Beyond the range of employment protection laws and beyond limited liability, the theorization of the network-firm as a single real entity highlights some issues both in law and in economics.

The rest of the chapter is organized in three sections. Section 2 explains the theoretical way which leads from a theory of the firm as a legal fiction to a theory of the firm as a real entity. Section 3 aims to apply the theoretical basis emanated previously to the particular case of the network-firm. Finally, section 4 concludes the chapter.

2 What is a firm? From the legal fiction to the real entity

In this part, the question of the nature of the firm is firstly approached from the point of view of dominant economic theories of the firm. A particularly attention is devoted to their ontological commitments. Then, this chapter sheds light on the reductionist position of theories advocating the personification of the firm by law. The firm is neither a legal fiction nor an invisible aggregate but a real entity. The last section of this first part proposes some theoretical bases for an ontological recognition of the firm as a real entity, integrated and perpetuated by an institutional and organizational glue.

2.1 The firm in contractual economic theories

What is a firm? The firm appeared as a particular and substantial area of research in economics through the rediscovery of the Coase's seminal contribution − "*the nature of the firm*" (1937) − that asked the question of the genesis and boundaries of the firm. In a world of imperfect information, Coase invoked the existence of transactions costs that can be reduced inside the firm via an "*entrepreneur-coordinator who directs production*" (1937: 388). The nature of the firm is strongly linked to the reduction of transaction costs, as Williamson (1985) has explained afterwards. It became clear that economists wanted to free themselves from the firm's appearance as a "*black box*" in economic models (Demsetz, 1988) which was "*anorexic: more bones than flesh*" (Hart, 1988: 467). Hence economists have made use of contract as the central modular mechanism able to play both a coordinating and incentive provision role within the firm. The nature of the firm is to assemble a set of contractual relationships between individuals who exist only as regards with contracts. There are no strict ontological differences between contract and organization, since organizations, should be seen as contractual arrangements through which the payment flows pass smoothly (Grossman and Hart, 1986). Starting from this conception of the firm, economists have focused on the make-or-buy problem that "*has come to be called the theory of the firm*" (Gibbons, 2005: 201) and have deemed vertical integration as the best governance structure to reduce opportunism enclosed to market exchanges.

Such a choice between the market and the firm makes the property rights structure central in the three traditional questions posed by theories of the firm: the nature of the firm, the boundaries of the firm and the internal organization of the firm. A change in the general system of property affects the way people behave and influence incentives. Property rights condition individual's actions and contribute *in fine* to the efficiency of economic systems (Cheung, 1969). The modern property rights approach has tried to explain firm boundaries in terms of the optimal allocation of assets ownership. In a world of incomplete contracts subject to renegotiation later on, the firm as an institution takes on importance (Williamson, 1985) and the extension of the size of the firm is a solution to allocate efficiently residual rights of control (Grossman and Hart, 1986). Firms arise where market contractual relationships fail. The private property firm seems to be "*a coalition among owners of separately owned resources whose value as a team exceeds the sum of the market values each could get separately*" (Alchian and Woodward, 1988: 70). Reducing the firm to a simple coalition is not sufficient. To include the rational bases of this reducing vision, a particular attention must be devoted to the ontological analysis of the firm in contractual economic theories.

According to mainstream views, the nature of the firm is based on the organization of a bundle of some different contractual arrangements. The firm is a nexus of contracts. Such a contractual analysis of the firm implies some sense of continuity between this one and market. Contractual relations are the essence of firms and human beings are parties to this nexus of contracts. The firm differs from market not in nature but in degree because the contract is the basis of all governance structures. Alchian and Demsetz (1972) say nothing different reducing the classical firm to a contractual structure. The firm, like any form of organization, is situated along a contractual continuum. More exactly, the firm is a "team" made up of a coalition of owners of assets (Alchian, 1984) and the contract aims to restrain and control the actions of team members. The firm is reduced to the "substratum" of contractual relations and to an aggregation of its parts. But from when is a nexus of contracts a firm (Demsetz, 1988)? The answer is never both because the firm is a sum of contracts and individuals that own resources and nothing more and because "*the reasoning cannot escape circularity since one cannot identify a nexus of contracts independently of a given firm*" (Gindis, 2007: 270).

The modern theory of property rights, which defines the firm as a collection of non-human assets, revolves about this theory of the firm as a nexus of contracts insisting that the holder of residual rights of control over non-human assets in a coalition (Moore, 1992) has power over human capital owners who are inalienable (Hart, 1995). Actually the owners of a human capital need non-human assets in order to be productive so that "*control over a physical asset in this line can lead indirectly to control over human assets*" (Hart and Moore, 1990: 1121). If according to the "nexus of contracts" view, it is not useful to determine what is and what a firm is not (Cheung, 1983), the "collection of assets" view of the firm states, on the contrary, that the questions of the nature and boundaries of the firm go hand in hand. The assets which are held by the firm form this one and not the others. The main question to analyze the nature and boundaries of the firm is who owns non-human assets and the firm is a single owner that has residual rights of control on these assets. As for the non-human assets, they constitute the glue that keeps the firm together. Without this glue the firm is "*just a phantom*" (Hart, 1995: 57).

In transaction cost economics, the firm is a "governance structure" coordinated by a hierarchical authority coming from a "private ordering" (Williamson, 2002). The basic unit of analysis is transaction (*i.e.* type of contracts). Finally this theory explains mainly what vertical integration is. Arguably these economic theories have in common to tie the nature of the firm to a contractual essence and the legal personification of the firm promotes its representation. The firm is just "*an aggregate formed by private contracting among its human parts*" (Phillips, 1994: 1065).

2.2 The personification of the firm by the metaphor of law

The nexus of contracts view is as influent in economic theory as in corporate law theory. In this view, "*we do not exactly know what a firm is"* because the firm is "*a shorthand description of a way to organize activities under contractual arrangements*" (Cheung, 1983: 3). The nexus of contracts theory does not recognize a corporate entity distinct from the components that form the corporation (Bratton, 1989). The firm is a legal person that is not nothing more than an artificial being that exists only by the way of metaphor of law or by a fiction of law (Machen, 1911). Jensen and Meckling (1976: 312) insist on the fact that "*most organizations are simply legal fictions which serve as a nexus of contracting relationships among individuals*". By a legal fiction it is meant that an economic organization must be treated as a single individual (Hodgson, 2002). Indeed since the firm is a nexus of contracts, those contracts must have parties. But a single individual aggregates these parties. The firm is a "person" that is to say simply a "*right-and-duty-bearing unit*" (Dewey, 1926: 655). To confer legal rights or to impose legal duties is to confer legal personality. The corporation can own assets, negotiate and sign contract and sue or be sued (Blumberg, 1990). But if corporate personality is a fiction, it is fallacious to argue that the entity, which is personified, is fictitious. The raison d'être of such a reductionism is to regard the firm as a conceptual and mental construct used to conceal varied contractual relationships with individuals.

From then on, an epistemological question arises: Are firms "*natural outcomes of human social life or derivative and sterile creations of positive laws*" (Mark, 1987: 1468)? Treating the firm as a fiction is similar to say that the firm does not exist. The firm is a linguistic entity used for convenience. So the answer to the question: "what is the nature of the firm?" is then: not to exist! In the same way the question: "what are the boundaries of the firm?" is fallacious because the essence of all organizations is the contract. Since the firm does not exist then it cannot have objectives and responsibilities. Physical assets cannot negotiate then sign contracts but individuals can. The firm does not really behave but the individuals behave. The firm is not a mere whole of individuals having duties and rights defined by legal relationships of agency, contract and property. If a corporation is merely the sum of its human components, "*how can it decide to act unless every member agrees to the action in question?*" (Phillips, 1994: 1083). The law can explain only partially how individuals bind themselves in a firm. The corporation has rights and liabilities in tort but it has no human wants (Laski, 1916). The firm is neither a fictitious entity nor a living organism (*e.g.* Maitland, 1905).

Such a reductionist theoretical treatment of the firm falls under a ubiquitous methodological individualism. But Orts (1998) underlines that the theories of the firm which rest on a strong membership of methodological individualism have not arrived at a consistent theory of the firm and at a coherent description of its boundaries. If it seems wrong to reduce the dynamics of social processes to individual's actions it is equally wrong to see collectivities such as the legal person as mere shorthand expressions for the complex aggregates of individual actions (Teubner, 1988). The corporation is a legal entity that is separated from the natural persons who form it. According to property rights theory, shareholders, that own non-human assets, circumscribe the legal entity called "corporation". Generally, aggregate theories make shareholders the aggregate's key figures. However "*if the corporation is a fiction, the shareholders who profit by the agent's services ought to bear the burden of his negligence*" (Radin, 1932: 662). But the liability of shareholders is only partial, which makes their identity irrelevant (Easterbook and Fischel, 1985). It is interesting to add here that defining the corporation as an aggregate makes difficult the justification of this principle of limited liability because how a fictitious entity can be totally liable for its obligations whereas shareholder's liability is limited to their capital contribution? Shareholders do not own the corporation as such. No one owns the corporation (Blair, 1995) and the "*corporation's being person implies that it cannot be considered as an object of property rights*" (Gindis, 2007: 272). In other words, "*corporate assets belong not to shareholders but to the corporation itself*" (Blair and Stout, 1999: 250-251). The firm is not only composed by shareholders but it integrates all stakeholders, owners or not, who affect and are affected by a business organization.

Stakeholders theories break up the primacy of shareholders and give food for thought that the firm is not a nexus of owners. Consequently the firm cannot be treated as individuals aggregated into a homogenous group of interests called "the owner". The firm must be treated as a real whole but neither as an individual nor as a real person because the firm has not motivations and intentions (Jensen and Meckling, 1976). Making this analogy would be as misleading as to compare the market to an individual. Why would the market be impersonal and not the firm? The answer to this question lies certainly in the moral and legal nature of the terminology "person". Indeed if the personality of the firm may be a legal person, the firm cannot be assimilated to a human organism (Hodgson, 2002). Being a legal fiction confers legal personality upon subjects that are not human beings (Smith, 1928). Groups as a corporation have a real social identity of their own that differs from the identities of the people who form them (Dewey, 1926). The firm is strictly impersonal because it cannot be strictly owned.

In a firm, some different individualities act in a unified way (Rowley, 1931). So the firm is "*an organised body of men acting as a unit, and with a will that has become unified though the singleness of their purpose*" (Laski, 1916: 424). Dejnožka (2006) defines the corporate person as a group of human beings that share a collective role. Brown (1905) wrote precisely that whenever men act in common they inevitably tend to develop a spirit which is something different from themselves taken singly or in sum. Individuals bind themselves to act for some common purpose. They form an entity which, by no fiction of law, differs from individuals of whom it is constituted (Maitland, 1905). Finally, the stronger the cohesiveness of the whole, the more real the entity (Dejnožka, 2006). The firm is real and law allows only to give it its legal recognition.

While the firm exists independently of its individual members, it does not act in a way that is apart from them. The parts are as real as the whole. It is clear that the split between the real entity and the fictitious entity goes hand in hand with the long running debate between so-called holists and methodological individualists.

But here these methodological concerns are not discussed. Although the analysis of the firm implies shedding light on some holistic dimensions, any form of determinism must be excluded. To include why the firm is real, the postulate of the "emergence" needs to be used. This one implies that properties of the whole cannot be reduced to properties of its constituents. The firm is an "*emergent entity*" (Benson, 1975: 230). The firm is real but it is not necessarily natural (artificial objects are real). If the firm is a real entity, it is not obviously a real personality.

2.3 The firm as a real entity: some ontological issues

The purpose of this section is to propose some ontological building blocks for an analysis of the firm as a real entity. Such a theoretical work implies departing from the nexus of contracts theory that cannot explain that firms have social responsibilities to non-shareholder humans as employees or suppliers. Defining the firm from the real entity view comes to assert that the firm is something different than the sum of its parts. Since aggregate views deny this, it is impossible that both approaches are true. If the firm is a social entity it is equally a real entity (Dodd, 1932), which implies that the whole exists regardless of its parts. It is only under this postulate that the firm has an identity and acquires its durability. Otherwise, each new member or part to the firm would destroy it and would create another. At the opposite, the firm is a "*social reality with an existence independent of, and constituting something more than, its changing shareholders*" (Blumberg, 1990: 50). Even if a firm has an individuality of its own (Rowley, 1931) that permits the organization suing and being sued in a group name (Smith, 1928), the firm has an objective reality and its definition cannot be consistent without rejecting the precepts of reductionism. As the firm is an organization devoted to production, the firm can no longer be fictitious. Above all things, the firm is indeed "*an integrated and durable organization involving two or more people […] set up for the purpose of producing goods and services*" (Hodgson, 2002: 56). The firm is an independent entity that is in competition with other firms and individuals. But what does it mean for a mere nexus to have a competitive advantage (Coff, 1999)?

The risks incurred by the firm, the lawsuits of which it is the target, the capacities and dynamic competences that it generates or the innovations which it produces are quite real. Firms are not all the same ones but the heterogeneity of firms must be taken into account (Hodgson, 1998). Each firm constitutes a particular and complex real entity. Firms are singular entities with a "cognitive capacity" and the ability to "act" in certain ways (Phillips, 1994). However all reference to psychic organisms is "*either gratuitous or highly misleading*" (Dewey, 1926: 673) because the corporate person is rather a representation of realities which the law recognizes rather than creates. Defining the firm as a real entity implies to "*capture human beings in their full variety and complexity*" (Phillips, 1994: 1111). Since human beings are shaped by their social relations, it would be possible to circumscribe individuals that compose the real entity. Individuals that are shaped by intra and inter-firms relations as employees or suppliers belong to the entity.

But such an analysis is misleading because shareholders would be not part of the firm, which is wrong. Thus the questions of the nature and boundaries of the firm are intimately correlated. Even if it is obviously impossible "*to draw a hard and fast line which determines whether there is a firm or not*" (Coase, 1937: 392) and even if it is right that economic theories make *"the boundary of the firm fuzzy so that a bright line distinguishing inside and outside is missing*" (Alchian and Woodward, 1988: 76), the boundaries of the firm matter. But properties ascribed to firms or not can be discriminated only if the firm is defined as a real entity that, by acting as a single economic unit, valorizes collectively resources of each.

The terminology of "real entity" exempt of all forms of living mankind is very suitable to define firm's nature. Treating the firm as a real entity implies that the firm exists intrinsically. The firm is a complex system (Simon, 1962) of human members and non-human parts which are interrelated and held together by something called "glue". This glue makes the firm a unit that, through time, acquires integrity and cohesiveness. Therefore the firm has a real identity that ensures the durability and the stability of the whole. These features are the properties of the firm as a real entity. But the actions of the whole are not reducible to the actions of its individualities. It is not because a human constituent leaves the firm that this one is subject to dissolution. The glue drives the actions of the group and makes the whole unified. This glue makes that the members of the firm think "we" to call themselves and think "they" to designate a competing firm (Simon, 2002). That's why the terminologies of corporation or firm are usually treated as singular and as incompatible with plural verbs and pronouns (Machen, 1911). The firm functions as an interactive structure. The glue constitutes the ontological ferment to a theorization of the firm as a real entity. The stouter the glue, the more real the firm.

A particular attention must be devoted here to this glue that can be restricted to its institutional and organizational dimensions. The firm is incontestably held together in accordance with a variety of types of glue. By reducing this complex concept of glue to its two dimensions, the aim is to underline that the firm is both an organization and an institution (see Hodgson, 2006). On the one hand, the firm is a real institution insofar as it regulates durably individuals' behaviour, ensures behavioural "conformity" of the individuals composing the unit and prevents and dissipates conflicts. On the other hand, the firm is a real organization insofar as it manages through time a bundle of tangible and intangible, human and non-human productive resources that change and evolve. Thinking the firm as a cohesive and durable whole implies shedding light on the "organizational and institutional glue" that holds the firm together. This glue stabilizes intra and inter-organizational relationships and is the base of a global synergic interdependence that takes root in a network of complementary specific investments (Rajan and Zingales, 1998). This glue is composed from some individualist or more holistic elements that are entangled. Among them, some elements as contracts, formal and informal rules, conventions, habits and routines, authority, property rights, statues or even trust form globally the institutional glue. Other elements as reputation, brand name, human and non-human resources, motivations, strategies, productive processes, competence, role, knowledge, collective learning, technologies or innovative capacity form the organizational glue. But there is not a sharp line between institutional and organizational glues so that both together form a single glue that keeps the whole integrated. But each firm is singular. Each firm owns its intrinsic glue.

Hart's idea about the glue is correct. However, contrary to Hart's thesis (1995), if the firm is a collection of non-human assets held together by a glue, this latter cannot be these non-human assets. That would be fallacious and the concept of glue would lose its substance. Some other organization and corporation theorists share more or less clearly this point of view. Langlois and Foss (1997: 213) argue that the firm is integrated by "*the glue of capabilities*" whereas Dosi (1995: 10) explains that the firm must be appreciated under several and different parts among which "*the distribution of formal authority, the distribution of actual power, the incentive structure, the structure of information flows, the distribution of knowledge and competences*". These parts compose the institutional and organizational glue. MacCrimmon (1993: 122) notes that "*strategy is simply a clustering of a set of actions that hang together in some way*". The philosopher Cohen (1919: 680) wrote about "*something uniting the different individuals*". Lawyers disclose a form of institutional glue. From a legal analysis of groups, Collins (1990a: 744) remarks that "*complex patterns of economic integration may be linked together in three principal ways: ownership, authority and contract*". Orts (1998) adds power relationships. Indeed, it seems that the stronger materialization of this glue is the exploitation of *de jure* (formal) and *de facto* (informal) powers (see 3.2.).

If contracts, property rights or transactions cannot be taken apart from the analysis of the firm, other collective and dynamic components as competence, learning and knowledge belong to the theory of the firm (Jacobides and Winter, 2005). If the firm is an institutional entity, it is equally a productive entity that generates specific knowledge (Nonaka *et al*., 2000). Thus, "*the key assets a corporation uses in production is intellectual capital − that is, the knowledge and experience residing in the minds of its employees, rather than the hands of its shareholders*" (Blair and Stout, 1999: 261). Without individuals, there is no firm. Individuals are the key constituents of the firm, regardless of contracts. The firm cannot "act" without individuals. The identification of individuals to their firm is a necessary condition of cohesiveness and durability. It is clear that contractual theories must be completed with competence and resource-based-view of the firm (see Gibbons, 2005) − which is more and more admitted including among their main supporters (Winter, 1988, Williamson, 1999) − to analyse what a firm is. It is essential to add that resources are tied to the firm with a precision that the bundle metaphor lacks. Coff (1999: 121) explains that "*since strategic resources are node in the nexus that the firm cannot own, the property rights are ambiguous*". But how to understand why the firm is a real entity and how to bypass the mere descriptive use of the firm as "*a collective noun denoting a particular cluster of otherwise ordinary contractual relationships*" (Masten, 1988: 181)? It is essential to approach the question of its nature and boundaries taking into account the increasing recourse to what Williamson (1991) has called "hybrid" organizational forms. This sophisticated structure of governance is based on some types of control that exist independently of the subscription of a contract.

3 Unity among plurality: what is a network-firm?

Thinking the firm as a "nexus of explicit contracts" is incontestably an amorphous theoretical treatment of the nature of the firm. The preceding attempt to define the firm as a real entity teaches that it is not sufficient to describe the firm as a legal entity. The raised question is here the following: Is-it necessary for a firm to be a legal entity to exist (MacCrimmon, 1993)? The purpose is to apply the new foundations for a theory of the firm as a real entity previously proposed to complex governance structures. If business groups belong to those, the application is exclusively based on the "network-firm" that designates a vertical network of firms legally autonomous. This form of productive organization is more than a matter of contracts because of the importance of *de facto* power relationships within the business entity. Although corporate law distinguishes several entities (Blumberg, 1990), it seems evident that two or more separate legal entities forming a network-firm "act" as a single economic entity.

3.1 The rationale of the *de facto* integration of the network-firm

In a world of vertically integrated firms with recourse to equity ownership, property rights economists produced a theory of the optimal assignment of assets – whose control must *in fine* belong to owners − and used it to analyze the boundaries of the firm that were relatively stable and easily defined. Owing to the movement towards vertical disintegration and the development of complex productive systems (see Simon, 1962) − roughly materialized by the modular architecture (see Langlois, 2002, Sturgeon, 2002) − definitions of the firm and analyses of its boundaries based exclusively on asset property rights can no longer be the only relevant ones (Holmström and Roberts, 1998). Vertical inter-firm cooperation processes have profoundly affected the relationships between legally independent entities and the network-firm is the best materialization of this tendency.

The network-firm refers to an institutional and organizational structure that binds a set of legally independent firms vertically "integrated" and coordinated by a main firm called the "hub-firm" "*which is the firm that, in fact, sets up the network and takes a proactive attitude in the care of it*" (Jarillo, 1988: 32)[2]. These governance structures are built on narrow links between different firms that are economically interdependent owing to the complementarity and the difficult orchestration of their specific resources. The aim of a "network-organization" is to generate a relational quasi-rent (Dyer and Singh, 1998: 662). Firms form networks to access to complementary and inimitable resources as well as to create an inimitable resource by itself only through its formation. From the resource-based view

[2] This firm has *de facto* ability (power) to design the field of actions of its industrial partners in terms of economic planning, conception, coordination and control of productive activities. The hub-firm plays the leading role in setting up and in ongoing co-ordination.

of the firm, the creation of critical value-generating resources is linked to firm's network of relationships. A single legal entity within the real organizational entity is required to coordinate diverse and complementary capabilities. Such an assignment must belong to the hub-firm that controls critical resources as brand name around which revolve complementary activities that need to be qualitatively and quantitatively coordinated (Richardson, 1972). Critical resources represent the core of the network (Robertson and Langlois, 1995) and the hub-firm carries out the protection of intra-network relationships.

The network is built from some specific assets − that can be human, physical, immaterial, temporal, dedicated or sited (Williamson, 1991) − through recurrent relations stamped of uncertainty. In other words, the network-firm is based on the three same Williamsonian conditions that justify recourse to vertical integration. These dedicated assets to the hub-firm − that imply specific investments materialized by some high sunk costs − are the heart of two linked problems; opportunism and hold-up risks. Despite high asset specificity and lock-in effects due to the multilateral dependence, transaction costs are not necessarily high (Dyer 1997), and vertical integration is not absolutely the chosen governance structure. Theories of the firm could not focus too narrowly on hold-up risks and on assets specificity. Firms can have recourse to contractual agreements that differ from hierarchy even though assets are strongly specific (Holmström and Roberts, 1998)[3]. Property rights views of the firm cannot explain vertical disintegration since the network-firm functions as a cohesive and sustained whole without recourse to property rights concentration. Vertical networks of firms succeed in maintaining strong market incentives to invest with a low opportunism but such an organization devoid of private ownership of the value-chain has some key implications on the boundaries of the firm. How can several legal entities form an entity which as "*a huge ensemble of partially interrelated tasks and procedures [...] produce "well-constructed" goods and services*" (Marengo and Dosi, 2005: 303)?

The coordination of activities within the network-firm is realized through complex integrative methods implemented by the hub-firm. Intra-network exchanges are non-market in a strict sense since the product does not pre-exist the transaction that is firstly expressed by a need. But this organization is not a hierarchy in a legal sense since intra-network transaction is a legal exchange between lawfully independent firms. However on the one hand, the network-firm is structured in a pyramidal form, composed of different levels of suppliers and delegation of responsibilities, coordinated by a hub-firm. On the other hand there are an exchange and a selection between different network members with the intention of minimizing costs, of creating a comparative advantage and of taking advantage of a market power. How can we appreciate similarly numerous different contractual arrangements like franchising, alliances, partnerships or network? Thinking the network-firm as an integrated organization is it similar to accept it as an extended

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[3] Jones *et al.* (1997: 918) identify four conditions necessary for network governance to emerge and thrive: "(1) *demand uncertainty with stable supply, (2) customized exchanges high in human assets specificity, (3) complex tasks under time pressure, and (4) frequent exchanges among parties comprising the network*".

hierarchy? This "network-organization" is neither market nor hierarchy (Powell, 1990, Podolny and Page, 1998) but constitutes a distinct alternative that complete the "make-or-buy" choice (Richardson, 1972). This governance structure should not be seen as the middle of a contractual continuum bounded by the firm and the market because the "non-market exchange" must be added (Hodgson, 2002). Although this economic organization shares some of the properties of the market and some of the properties of the hierarchy, the network-firm is not a "hybrid-form" (Teubner, 1991). A tripartition of organizational structures composed from market-hierarchy-"network-organization" is more suitable (Baudry and Gindis, 2005).

The distinction between these three organizational structures is not a question of degree but a question of nature as the firm differs from market by nature. Hodgson (2002: 50) writes in this sense that "*by adopting the obfuscatory concept of a firm-market hybrid, Williamson muddled his former claim that the firm is essentially different from the market*". Thus, an analysis of economic organizations as regard with the diversity of its incentive and coordination mechanisms is needed to reveal the different elements of the glue that holds the network-firm cohesive. Among these mechanisms, reputation and trust are entangled with formal authority and market incentives and are susceptible to reduce transaction costs (Granovetter, 1995). Trust is a necessary condition to network maintenance (Buxbaum, 1993). According to Jones *et al.* (1997), exchange conditions of complex and customized tasks with recurrent interactions generate embeddedness. Networks are more dependent on mutual interests and reputation as well as less coordinated by a formal structure of authority (Teubner, 2002). Incentive provisions inside the network-firm are not only contractual (Sacchetti and Sugden, 2003) but based on some forms of relational and reputational commitments that bind the legal entities together to "act" as a unified actor (MacCrimmon, 1993). This organizational form assembles a set of independent firms vertically related under the more or less explicit and formal authority − erected from "relational contracts" (Baker *et al.,* 2002) − of a hub-firm that takes care of the integrity of the whole**.**

Orts (1998: 310-311) argues that "*relational firms*" − that he defines as non traditional firms made between or among simpler firms to act in unison to compete with others in organizational metamarkets − "*highlight the analytical difficulty in defining the boundaries of the firm*". He adds that "*from a legal perspective, the boundaries of relational firms are dynamic and shift in response to different questions about different elements of organization*" (*ibid.*). The network-firm is a relational firm. But even if economic relations take place between legally autonomous firms, the firms of the network form together and define the economic boundaries of a single organizational entity that acts, as a dynamic whole of interacting firms, under the legitimate control of the hub-firm. The "domination" of the hub-firm on its subcontractors results from its central role in the coordination of this single entity, so that the consequent problems of coordination may be handled by access or control. Since access and control are not strictly contractual, the analysis of the network-firm is accurate to reject the broad use of the term contract in economic theories of the firm and to expand consideration of the true "*legal basis for the firm*" (Masten, 1988).

Network governance binds autonomous firms that operate like a single entity in tasks requiring joint action. Firms establish these privileged relationships through strong interactions with each other although there is a *de facto* vertical integration (unspecified contracts, long term view and tasks structured by informal authority) across the legal boundaries, generated by the *de facto* subordination between the hub-firm and other members. The boundaries of the firm become muddled because they are more and more formed "*not only by relationships of ownership and contracts, but also agency authority and power*" (Orts, 1998: 326).

3.2 Durability of the network-firm: a place for power?

Power is not antonymic to efficiency − because power does not occur only owing to some market failures (Palermo, 2000) − but has some effects on the organization's productive value (Rajan and Zingales, 1998). Some organization theorists have asked how to structure relationships within and across the boundaries of firms to create and distribute the rent among the key corporate participants in way that provides incentives for all participants. According to modern property rights theory, power matters inside the firm in events not covered by the contract. Even though diverse parties of the network-organization are not integrated into the same lawful structure, the legal contractual autonomy does not imply that the different parties have equal economic power and that they can act freely without restraint. How does the economic entity "network-firm" coordinate the actions of its members, structure the various powers involved and allocate these? Answering to this fundamental question implies proposing a usual definition of power. Power can be defined as an individual or group's *ability* to structure and restrain choices and actions of another individual or group by some particular mechanisms that are formal as well as informal, in variable proportions depending on the circumstances. Power is the central concept in network analysis and the more typical phenomenon is interdependence (Thorelli, 1986). The network-firm aims to integrate several firms through both the formal and informal domination of a hub-firm.

Intra-network decision process takes on a political dimension. Benson (1975: 229-230) characterizes the "*interorganizational network*" as an "*emergent entity*" that is akin to a "*political economy*". In this sense, he argues that power derives from the central organization's control over strategic contingencies confronted by the peripheral organizations. But if power is a constituent property of network relationships characterized by complex tasks high in human critical resources (Sacchetti and Sugden, 2003), power has no existence in itself but solely owing to its position in economic relationships. Power and authority − this later being defined as a legitimized power and as an institution − are not "*an attribute of the actor*" (Emerson, 1962: 32) since power is linked to actors interdependence. Intra-entity power relationships are the materialization of the institutional and organizational glue that keeps the firm together. Even if there is power in the network-firm, this entity is a cohesive and durable whole. By treating firms as legal entities, mainstream economists cannot explain the mechanisms by which people bind themselves into firms. Power is undoubtedly one of the more important mechanisms. But power does not result exclusively from ownership that would be "*the power to exercise control*" (Grossman and Hart, 1986: 694).

The complementarity of critical resources is a main source of strategic synergy that creates the glue and generates a global economic interdependence. This latter can be utilized as the observe of power. The role of the hub-firm consists in managing and governing in order to ensure the cohesiveness of the entity and to make its human and non-human constituencies "bear fruit". The different members of the network (belonging to the inner circle) dedicate their key resources to the hub-firm and participate to the knowledge-creating process. Complementary network-firm-specific human investments are embodied in a valuable collective learning process that exists only given access to critical resources (Rajan and Zingales, 1998). Access to key resources is the servant of power relationships and of the glue that makes firms integrated in a single whole. Legally autonomous entities are integrated and coordinated by the controlling and ordering power of the hub-firm that does not originate in contract but in organization itself.

Why emerge a unit whereas there are power relationships among autonomous firms? Indeed any discussion of social entities raises the question: How can such entities facilitate or constrain the exploitation of power (Perrow, 1986)? Coff (1999: 122) argues that "*if stakeholders can act as a cohesive unit, their threat of exit will be more serious and more credible*". Shareholders seem less likely to have bargaining power and stakeholders may appropriate all most of the rent. According to Rowley (1997), stakeholder network is a source of power for both stakeholders (that have a legitimate claim on the firm) and the hub-firm. Owing to the creation of dependence positions between the members of a network, power is more widely dispersed among them (Kochan and Rubinstein, 2000). All stakeholders and shareholders must be taken into account in value creation and value distribution, which implies a pluralistic theory of property rights (Donaldson and Preston, 1995). The boundaries of the firm become confused and *de facto* undetermined because private property differs from power. Such a more "democratic" vision of power relationships can be applied successfully to the network-firm. Even if the owners of physical capital hold a significant bargaining power, this relation is no longer exclusive. In this way it is untenable to define the network-firm by the ownership of the non-human assets. The definition needs to be extended to power that accrues to those having made specific investments around a critical resource of the economic entity. If power is strongly linked to control on key resources, there is not an exclusive power into the network-firm. Network-firm-specific human investments give power to the holders of these resources. The distribution of power into the network-firm is realized on the basis of the pattern of interdependencies amongst actors' resources and activities.

The traditional view of the firm defines it as a bundle of assets that belongs to shareholders but is managed for them by hired managers. Some of this management power was effectively unilateral (Bratton, 1989) in spite of the strong separation between control and property (Fama and Jensen, 1983). However, there is not a unilateral power concentrated in the hands of top managers and delegated by sovereign shareholders of the hub-firm but there are different powers within the network-firm. If some works have been done to determine how ownership structures might be used to protect investments in firm-specific physical capital, "*less has been said about how contracts might be draw up or other institutional arrangements might be made to protect firm-specific human capital*" (Blair, 1999: 72). The key resources of the network-firm, which are more and more intangible and reputational, are embodied in the human and organizational capital whose rights of control are not directly contractible and difficult to enforce (Asher *et al.*, 2005). The network-firm looks for creating a position where its idiosyncratic capabilities are able to generate a competitive advantage (Dosi and Teece, 1998) whose exploitation is a source of durability of the whole (Gulati *et al.*, 2000). The critical resources of the network-firm are controlled by the hub-firm that grants the possibility for the selected partners to embody their own resources in this real entity. The control of access to critical resources gives the legitimate ability to design intra-network organization and enables the entity to develop its key capabilities. Access becomes a critical resource in itself. The legitimacy of access as a condition of glue results from strong complementarities and dependences (Zingales, 2000) that are said to exist when the unit and the firm can together create more value than they can do in their own separate ways.

Human resources of the network are not owned but only controlled (by the hub-firm) through some *de facto* mechanisms, as access, when individuals' specific resources are very dependent to them. The evolution of power exploitation is characterized by the non-exclusivity of *de jure* sources of power. The growth and the distribution of *de facto* powers into network-organizations have some large implications on the definition and boundaries of the firm. The Chandlerian firm owned by some outsiders is conformed to the concordance between legal and economic boundaries of the firm but it is no longer accurate to analyze modern complex organizations. The network-firm differs from the firm in a usual sense because its boundaries differ from the perimeter of the legal entity as a "nexus of contracts" (Rajan and Zingales, 2001). The network-firm is constituted of some autonomous entities called "firms". The terminology "network-firm" focuses on the singularity of this organization that implements one single productive process. It is more delicate to qualify a network of firms as a network-firm as soon as some of the autonomous firms belong to several entities. In this case, these firms are not really integrated into a single entity "network-firm" and the identity of their partners is less ubiquitous. The whole is less cohesive and the entity is less real than an entity where subcontractors are "more" dedicated to only one hub-firm. So it is manifest that such complex organizations have some fundamental implications both in law and in economics, notably in terms of employment contract and liability.

3.3 The network-firm is a single real entity regardless of law

The theorization of the network-firm as a real entity implies to make some law and economics of this modern form of vertical organization. The specialized members of the network-firm constitute “a critical resource” and give some opportunities of growth to this single productive entity. But there are not employment contract and protection between independent firms and the hub-firm. Besides, as the network-firm is an active unit that is *de facto* integrated, it is essential to explain that it is not an aggregation of independent firms but a single real entity. However in terms of legal liability, there is not *de jure* recognition of the network-firm.

3.3.1 Beyond the scope of employment protection rights

Taking into account that a firm is a fairly well-defined structure whose interests are simply an extension of the interests of its owners comes back to think that employees are contracting with the firm but are not, themselves, a part of it. Alchian and Demsetz (1972: 111) argue nothing else when they write that the firm “*has no power of fiat, no authority, no disciplinary action any different in the slightest degree from ordinary market contracting between any two people*”. Property rights theorists have studied the nature of the firm separately from the structure and terms of relationships with and among its employees. But employment relationship intrinsic to a firm makes it different by nature to the market. Employment contract constitutes a formal institutional glue that lacks in the network-firm where some critical resources may extend beyond firm’s legal boundaries (Dyer and Singh, 1998). The network-firm is sustained over time by an interacting and co-existing formal and informal glue (see Baker *et al.*, 2002) that binds legally autonomous but interdependent firms. The network-firm transcends the legal shell of the firm. The legal definition of the firm becomes ill adapted to the network-firm and disconnected to its economic meaning. More exactly the recent trend towards “outsourcing” of productive modules places the employment relation beyond the range of employment protection laws (Collins, 1990b) that is at the heart of the Coase’s thesis on the nature of the firm**.**

The relations of power within these inter-firms relations cannot be said to be totally free of legal principles. But the employment relation assumes a legal particularity that differs from a trading relation between firms even though contractual clauses are susceptible to control the actions of partners. If both transactors have right to sue, authority has not the same base compared with obligations, sanctions or procedures (Masten, 1988). Subcontractors can change their partners, do not obey strictly to the hub-firm or modulate their productive process. In automobile industry, the majority of the production workers in the factory are employees, not of auto constructors, but of subcontractors that provide and install components and systems on the cars along the line. Access is a *de facto* mechanism that palliates the absence of employment relations, providing better incentives than ownership (Rajan and Zingales, 1998). The degree of closeness of human resources towards this strategic asset is the main factor in power sharing. So access is a dynamic component of the network-firm coming with long-term relationships that perpetuate the cohesiveness of the whole over time, regardless of employment contract.

There are not *de jure* sources of subordination without equity ownership. But any employment contract ties the hub-firm to suppliers’ employees so that the authority of the hub-firm is only *de facto* exerted. A not strictly contractual analysis of the network-firm, separating the *de jure* employer and the *de facto* employer, makes ambiguous the employment relation. New protective rules are needed (Collins, 1990b). Ratner (2001) explains that corporations have always wielded significant power, conferred by law, over their employees. It is no longer true with the emergence of such complex vertical organizations. Power does not result exclusively from the law. Collins (1990b: 355) argues that "*this raises the question whether the exclusion from employment protection rights is in fact an important reason for vertical disintegration rather than an unfortunate side-effect of other economic forces*". If it seems pertinent to enrich labour law to take into account the relationships of subordination between the hub-firm and its partners, it seems necessary to recognize the network-firm as a single real entity for some particular legal questions. If the legal basis of the firm is fundamental to theorize the firm (Hodgson, 2002), it does not mean that the network-firm cannot be considered as a real entity because the law does not recognize network.

3.3.2 *De jure/de facto* liabilities: a set of entities or a single entity?

Some bigger firms (PSA, Danone, Nike, Intell...) are extensively relied on outsourcing and on a small base of critical assets. The hub-firm obtains a huge power to state how relationships among its subcontractors have to be organized (Holmström and Roberts, 1998) by controlling brand name and reputation that are the main critical assets of the network. The economic perimeter of the network-firm is circumscribed by the perimeter of the hub-firm's power. Insofar as the hub-firm coordinates the network, generates the glue and prevents it from dissolution, the network-firm is a single real entity integrating the contributed modules into a single unit. Inside the network-firm, "*neither the individuals nor the relation they bear to one another is fictitious*" (Raymond, 1906: 362). To answer to Cohen (1919: 680), the glue, in the network-firm, is this "something" that makes that individuals *"act differently than they would if there were not so interdependent*". Individual and collective elements both increase in importance at the same time.

The network-firm is not a legal entity with some rights (contracting, assets ownership, sue or be sued) because it is not a legal personality (Blumberg, 1990). Network is not a "legal concept" (Buxbaum, 1993). The economic integration of the whole is linked to ownership, contract and power (Collins, 1990a, Orts, 1998). The simultaneous strengthening of contractual and organizational elements becomes possible (Teubner, 2002). If the network-firm is not a fiction of law, it is not more a *"mind-body unity of real associative personality nor autonomized bundles of resources*" (Teubner, 1991: 56). But the network-firm is a real entity regardless of legal structure, as real as any legally recognized firm. It is not essential to know whether the network is or must be instituted by law to say that it is real. There are not *de jure* sources of liability without equity ownership. The hub-firm's shareholders do not hold shares in the network but only in the hub-firm which does not hold property rights to member firms. In the same way, consumers sue hub-firm and not other network-members. The legal definition of the firm matters because the law recognizes firms that constitute the network. The legal status of these firms makes that the network-firm exists. But the law needs to be reconsidered as regards with modern productive organizations that have become a complex and multilevel phenomenon for lawyers and economists. Collins explains that complex organizations (as business groups) raise the problem of the capital boundaries since networks benefit from the "*power to manipulate capital boundaries in order to reduce or eliminate potential legal liabilities*" (1990a: 738).

The network-firm is neither a bundle of contracts nor a bundle of assets. The network-firm is a real collective unit "*when the relations are so long term and recurrent that it is difficult to speak of the parties as separate entities" and when the "entangling of obligations and reputation reaches a point that the actions of the parties are interdependent, but there is no common ownership or legal framework*" (Powell, 1990: 301). The network-firm "acts" collectively through a multiplicity of nodes and not through a single action centre. Such a complex organization must be treated as a single real entity in terms of liabilities against outsiders. Indeed, the network-firm does not benefit from limited liability. In the case of outside disturbances the question is whether the network-firm should react as a whole or whether the nodes should react autonomously. Since the network-firm is an integrated functional economic unit, it must also be liability unit in situations where causation damage can be traced back only to the network itself. The network-firm should be considered as a "*united group for the purpose of the ascription of legal personality*" (Collins, 1990a: 744) in order to be treated by law as a single entity. It is accurate to treat the network-firm as a single entity and not as a set of entities because with tort victims it is the main critical resource of the entity "network-firm", the reputation, which is weakened. It is not important for consumers to know the identity of firms that compose the network. When a product does not work right, consumer does not search who is in tort or who has produced the faulty element. So, it is the whole which is affected but it is not the network itself that is sued. It is the hub-firm that is sued, although the hub-firm can sue its "flawed" partner. With these new forms of action attribution new risks emerge and according to Teubner (1991: 60) "*the decentralized character of the network suggests that [...] we establish the threefold responsibility of collective, centre, and individual unit".*

If the case of business groups is attractive for understanding why the firm is a real entity, the network-firm is more suitable because equity ownership is not involved. The liability of the hub-firm is not *de jure* as in business groups but *de facto*. Teubner (1991) argues that external liability of the network itself should be provided by law explaining that "piercing the contractual veil" should result in a selectively combined liability of the network-firm. So which of these two complex organizations is the more real? Does equity ownership generate more cohesiveness than a less formal organization? Nothing is less sure. So can it be said that the network-firm benefits from and emerges owing to legal incompleteness? What is sure is that the more cohesive the single entity, the more real this active entity.

4 Conclusion

The firm is not a fictitious and artificial entity reducible to its legal personality but the firm is real without collectivist or organicist metaphors. It is mistaken to reduce firms to legal fictions (*i.e.* to mere abbreviations or shorthand expressions). Law provides for a set of legal entities that are simply "*standard-form contracts among the parties who participate in an enterprise*" (Hansmann and Kraakman, 2000: 387). Because they are weighty reductionist and "*seriously incomplete*" (Simon, 1991: 43), contractual economic theories, that define the firm as a nexus of contracts or as a collection of non-human assets, are not theories of the firm as a real entity. In other words, dominant economic theories of the firm take "*aggregate rather than an entity, approach−separate relationships comprised the corporation's ontological center than the force of the collective effort*" (Bratton, 1989: 1489). By contrast with such reductionist positions, it must be assumed that "*contract and organization each represent separate [...] social systems, which differ from each other [...] not merely in the degree of intensity of their governance structures. Networks too, then are not merely an intermediate, but a stepped-up form of a special nature*" (Teubner, 1991: 46). The firm is structured by an intrinsic organizational and institutional glue that makes the whole cohesive and durable by integrating human and non-human constituents. The firm is an emergent real entity that cannot be summed to its members or parts but the firm is neither a nexus of contracts nor a group of assets (see Iacobucci and Triantis, 2007).

Both the confrontation of economic issues with old legal debates on corporate personality and the analysis of the network-firm's functioning rules are valuable to underline the fundamental implications of this ontological recognition of the firm as a real entity on economic theories. The network-firm is a single real entity coordinated by a hub-firm that prevents the whole from dissolution. Without recourse to equity ownership this non-hybrid complex entity succeeds in making some legally independent firms a single active unit. Beyond such important legal bases as employment contract and limited liability, the network-firm exists intrinsically and is perpetuated by some integrative forces as the exploitation of powers. Inside the (network-) firm, power is the stronger materialization of the glue that holds the whole together. If it seems clear that new protective rules provided by law would be relevant in some cases, the question of the legal recognition of the firm as a real entity is an endless debate. Finally is it necessary that economists and lawyers agree on a legal status of the network-firm as a single real entity? The legal recognition is a not necessary condition for the emergence of the network-firm and to theorize it as a real entity.

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