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## Theories of the firm: How to rule out competing views?

### Introduction

What is a firm? What are the main driving forces that explain the trade-off between make-or-buy decisions? Since the seminal article of Coase on the nature of the firm (Coase 1937), those questions have been put under the attention of a growing number of economists, looking for a theory of the firm. Since the beginning of the 70's many progresses have been made, yet despite the important literature on the subject, the make or buy trade-off is still an empirical as well as a theoretical challenge. The empirical challenge comes from the difficulty to have a complete picture of the phenomenon since firms have a large spectrum of governance structures more or less formal, and they move from the hierarchy to outsourcing and from outsourcing<sup>1</sup> to internalization (Ménard 2004). The theoretical challenge comes from the multifaceted phenomenon that can hardly be grasped by a unique theory leading to the multiplication of theoretical approaches. Recently some authors such as Foss and Foss (2000) or Williamson himself have tried to bring some coherence in all this diversity by considering two bodies of literature the governance perspective and the competence perspective<sup>2</sup> (Williamson, 1999).

In this paper, we confront these approaches by considering one aspect that is common to all of them. In fact, albeit their differences, they have in common to give a central role to what can be generally called human asset specificity. Human asset specificity refers to specific know-how or skills that have been accumulated during the transaction. In this paper, we limit our investigation to three theories. Regarding the governance perspective, we will consider the transaction cost theory (TCT) (Williamson, 1996). And for the competence perspective, we will consider simultaneously the evolutionary theory (Dosi-Marengo, 2000) and the resource-based view (RBV) (Barney, 2001); both approaches are knowledge-based explanations. They have in common (a) behavioral assumptions (rule-guided behavior and learning) and (b) their belief that knowledge and capabilities represent a firm's critical resources.

Our objective in this paper is to show that the governance and the competence perspectives give alternative views of what a firm is and the reasons for internalizing certain transactions. Based on a comparison of these alternative explanations, we argue that (i) what distinguishes those theories of the firm is mainly (not only) the way human asset specificity is supposed to influence the boundary of the firm and (ii) the majority of existing empirical studies are not precise enough to rule out competing views. Nevertheless, we show that refinements in empirical tests are feasible and already developed that should lead in a near future in a better assessment of alternative theories of the firm.

The article is organized as follow. We first sketch out the TCT's argument concerning the role of human asset specificity to explain make-or-buy decisions before presenting the more recent challenging arguments coming from the competence view, that is, the evolutionary theory and RBV. Then we come back to empirical evidences to try to rule out competing

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<sup>1</sup> "Such relational form of outsourcing include long term alliances, joint ventures, and other forms of relational contracting (e.g. McNeil, 1985)" Mahnke (2001)

<sup>2</sup> it can also be found under the term knowledge-based perspective

views, and we specify what type of improvements are needed in order to do so. For this discussion, we draw on a few studies that already follow this way. Conclusions follow.

## 1. Alternative Theories of the Firm and The Impact of Human Asset Specificity

### 1.1. The governance perspective -TCT-

Transaction cost economics views firm as an ultimate (flawed) solution that occurs when contractual possibilities are too expensive. In other words, the theory is constructed as if “at the beginning there were markets” and looks after conditions in which markets, or contractual relationships are not possible.

Putting it more formally, in its most general form, the decision to choose a governance structure (firm vs contracting on the market) represents a standard discrete choice problem. Transactors will choose one governance structure if the expected gains (net of transaction costs) from doing so are greater than those of organizing the transaction in some other way, or formally<sup>3</sup>,

$$(1) \quad G^* = \begin{cases} G_c, & \text{if } V_c > V_a \\ G_a & \text{if } V_c \leq V_a \end{cases}$$

where  $G^C$  represents the integration decision,  $G^a$  an alternative contractual relationship on the market,  $V^C$  and  $V^a$  the corresponding values of the transaction under a firm and a contractual relationship ( $V$  being the transactors’ beliefs about the joint surplus), and  $G^*$  the governance form actually chosen.

Because the returns transactors expect from governing their transactions in different ways are difficult, if not impossible, to observe, a testable theory of governance structures requires that the theory relates the benefits and costs of alternative governance arrangements to the observable features of the transaction. Thus, to the previous arguments we must add relations of the form

$$(2) \quad V^C = V^C(X, e_c)$$

and

$$(3) \quad V^a = V^a(X, e_a)$$

where  $X$  represents a vector of observable attributes affecting the gains from trading under the relevant governance arrangements, and  $e_c$  and  $e_a$  are error terms that may reflect either variables omitted by the investigator or errors or misperceptions on the part of decision-makers about the true values of  $V_c$  and  $V_a$ <sup>4</sup>. Let us assume for practical reasons that the preceding relations can be represented linearly as

$$(2') \quad V^C = \beta X + e_c$$

and

$$(3') \quad V^a = \alpha X + e_a$$

<sup>3</sup> See Masten-Meehan-Snyder (1991) and Masten (1986) for more about the way to formalize the integration decision. See also Masten 2002 for recent developments.

<sup>4</sup> Potential differences in the set of attributes that affect efficiency under alternative governance arrangements are taken into account in the model by the possibility that the estimated marginal effects of particular attributes equal zero.

We can then represent the probability that a firm emerges over an alternative governance form as  $\Pr(G^* = G^C) = \Pr(V^C > V^A) = \Pr(e_a - e_c < (\beta - \alpha)X)$ . In other words, an element of  $X$  whose effect on the expected gains from trade under a firm governance,  $\beta$ , is greater than its effect under the alternative arrangement (firm over contracting relationship),  $\alpha$ , will increase the likelihood that a firm will be the observed form of governance. Theories of contracts inform the analysis by identifying which attributes empirical researchers should focus on and by predicting the differential effects (i.e.,  $\beta - \alpha$ ) of those attributes on the transaction value and, potentially, by providing guidance on the functional form of the  $V(X, e)$ 's.

In that respect, based on behavioral assumptions (bounded rationality and opportunism), the theory identifies three main factors (uncertainty/complexity of the transaction; frequency of the transaction; and asset specificity needed for the transaction) that may increase transaction costs (or contractual costs) and that may explain the use of a firm instead of a market.

Asset specificity is central in this theoretical construct. That is especially the case of human assets. As noted by Williamson, "Any condition that gives rise to substantial human asset specificity – be it learning-by-doing or chronic problems of moving human assets in team configurations – favors an employment relation over autonomous contracting. Common ownership of successive stages is thus predicted as the degree of human asset specificity deepens" (Williamson 1985, page 96). Asset specificity creates bilateral dependency and poses added contracting hazards that may give rise to an alternative coordination mechanism: the firm. However, the development of human asset specificity may be wanted in order to create overall value, by decreasing production costs or / and increasing demand by differentiating the product for example. This can be summarized by the following hypotheses:

Hypothesis 1. The increase of human asset specificity creates value on the one side and increases the level of transaction costs on the other side. This is true inside the firm and outside the firm (e.g. on the market). As asset specificity deepens, more complex governance structures are required to attenuate costly bargaining over created rent<sup>5</sup>.

Hypothesis 2. For each level  $k$  of human asset specificity, corresponds a governance structure  $i$  that is maximizing the value created. If we note  $N_{vik}$ , the net value created with this level  $k$  of asset specificity using a governance structure  $i$  then:

$$\exists i / N_{vik} \leq N_{vjk} \quad \forall i \neq j$$

The firm is then viewed as very distinct from the market as markets and hierarchies have different access to fiat (Williamson 1996 vs Alchian & Demsetz 1972) and there is a differential in respect with bureaucratic costs. More precisely, the firm is described mainly as a coordination mechanism in which there exist low-powered incentives, extensive administrative controls and its own dispute settlement machinery (courts will often refuse to hear intrafirm disputes, the effect of which is to make the firm its own court of ultimate appeal). More recently, considerations of differential probity have been examined (Williamson 1999; Bréchemier–Saussier 2000 for an empirical test) in the context of transactions where failures of loyalty and real time responsiveness could undermine integrity.

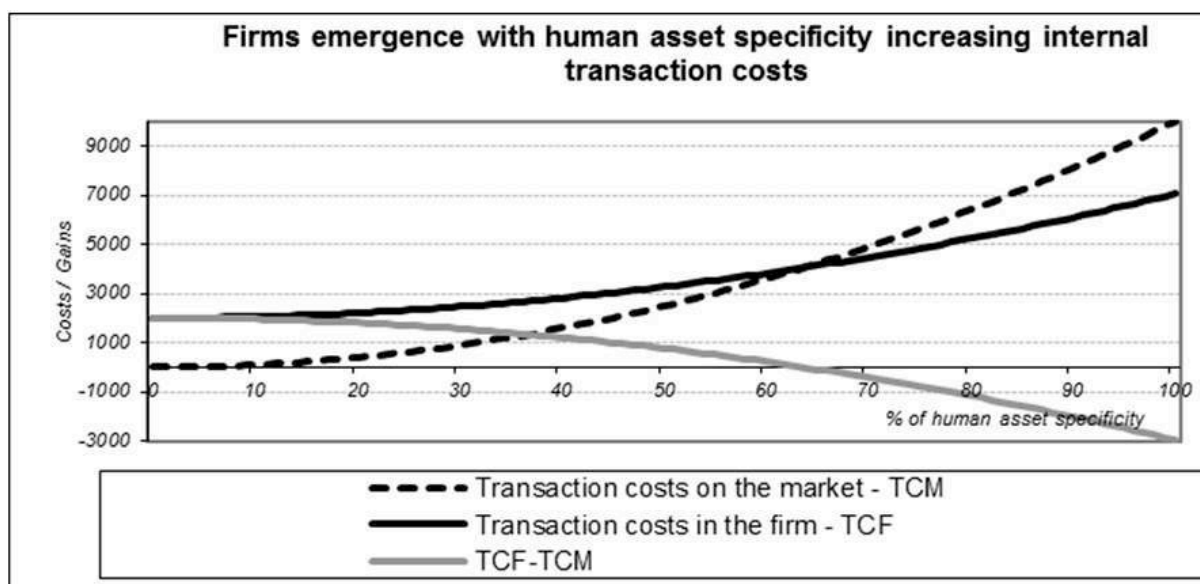
The main idea is that the firm, with its distinctive capabilities, is able to govern transactions of particular kinds for which markets are not suitable, by reducing / controlling more strongly opportunistic behaviors and transaction costs that may arise as soon as economic actors are in a dependency relationship (Williamson 1996 and Riordan–Williamson 1985 for a more formal treatment). However, such control is at a cost of high transaction costs (e.g. higher transaction costs than on the market with transaction characterized by a lower level of asset specificity).

<sup>5</sup> See Saussier 2000 for an empirical test.

Main Proposition concerning the integration decision (TCT): transactions with high level of human asset specificity are more probably internalized because the firm handles better such transactions compared to the market, even if human asset specificity increases the cost of coordination in the firm<sup>6</sup>.

More formally, if we focus on transaction costs only<sup>7</sup>, and we note  $\alpha_{tc}$  and  $\beta_{tc}$  the impact of X factors on transaction costs respectively on the market and in the firm, it means that asset specificity, and more particularly human asset specificity should lead to more integration because  $\beta_{tc} - \alpha_{tc} < 0$ , with  $\alpha_{tc} > \beta_{tc} > 0$ . That is to say transaction costs coming from human asset specificity are reduced inside the firm compared to the market because of the distinctive capabilities of the firm we mentioned earlier. To illustrate this issue, we propose a quadratic form for transaction costs on the market and in the firm (See figure 1). Over a certain percentage of human asset specificity, the firm is the more adequate governance structure as it permits more value to be created by economizing on transaction costs.

**Figure 1. Firms emergence with human asset specificity increasing internal transaction costs**



with  $TCM = x^2$ ;  $TCF = 2000 + 0,5x + 0,5x^2$ ;  $x$ : % of human asset specificity  
 TCM: transaction costs on the market ; TCF: transaction costs inside the firm

The competence perspective departs from transaction cost reasoning in describing the mechanisms through which asset specificity influences boundary choices. Knowledge and knowledge accumulation is the key issue which challenges the role given by TCT to opportunism and asset specificity in the decision to make or buy.

### 1.2. The competence perspective – Evolutionary theory and RBV

Although distinct approaches, the evolutionary theory and RBV are knowledge-based explanations of the firm. They have in common (a) behavioral assumptions (learning and rule-guided behavior<sup>8</sup>) and (b) their belief that knowledge and capabilities represent the firm's

<sup>6</sup> Such proposition could be refined in respect with other parameters like uncertainty/complexity of the transaction and frequency of the transaction.

<sup>7</sup> We move from a discussion over total surplus to a discussion over transaction cost levels. Implicitly, we do not take into account possible production costs differences moving from markets to the firm. Transaction cost economics makes the assumption that production costs are always lower on the market compared to the firm and that only transaction cost considerations may explain the emergence of a firm.

<sup>8</sup> Organizational actions and behaviors are based on rules and routines that have emerged through a path-dependent process of learning and adaptation (Levitt and March, 1988).

critical and distinctive resources. Whereas TCT is based on an “implicit *ceteris paribus* assumption that organizations naturally possess, in its optimal form, the knowledge required to carry out (...) complex tasks” (Dosi-Marengo, 2000, page 82), the competence perspective advocates that firms have to build specific knowledge to be able to “conduct complicated procedures to carry out complicated tasks such as producing aircraft, shoes, transportation services for people and goods, etc.” (ibid, 2000, page 82). This raises the following question: what is the difference between the market and the firm when it comes to build knowledge?

If we believe in the assumption of bounded rationality, we cannot suppose that the firm’s behavior results from an optimization program<sup>9</sup>. One alternative is that actions are based on routines and capabilities that represent where the firm’s distinguishing competences reside. What makes the firm better suited to develop knowledge is based on three arguments. First, knowledge is the result of learning and experience. Second, since it is the result of learning, it is context- (local) and path-dependent (historical). Finally, it is partly tacit and the organization is partly unaware of its existence because it is embedded in organizational routines and individual skills (Nelson-Winter, 1982, Cohen et al., 1996). For this reason, knowledge can only be transferred to a third party who has some absorptive capacity, that is, who has already accumulated the required knowledge to understand and integrate the knowledge developed by this third party. If it had not this absorptive capacity, the transfer would be too costly to be implemented<sup>10</sup>. Then, why should a firm buy knowledge on a market when it has the capacity to build it internally?

One answer is “there is no reason”. Knowledge is not developed in a vacuum, it is build as coordination and communication mechanisms emerge and become embedded in some shared identity (Kogut-Zander, 1996). The consequence is that this common identity lowers the cost of communication for future search and learning. “As an activity becomes more specific to the firm, it increasingly accesses and develops a common organizational communication code which both codifies knowledge and facilitates its efficient dissemination and protection” (Poppo-Zenger 1998, page 857). Firms are therefore viewed as a governance structure that possesses advantages in generating firm-specific language and routines that yield valuable capabilities. When Knowledge is tacit and difficult to transfer, using independent contractor relationships for developing new knowledge may become very costly in terms of transactions and even impossible independently of any opportunistic behavior. “The key is that some of each person’s knowledge necessarily remains private, as established by the bounded-rationality corollary. Honest persons (...) may disagree about the best course of joint (or even individual) action, or the division of gains. (...) The person’s “discovery” may produce lengthy and costly negotiation, which includes efforts to convey to the others both the originator’s analysis and the knowledge on which it is based. Because of irreducible individuals, adoption of the innovation may not be automatic.” (Conner-Prahalad, 1996, page 483). Whereas under the cover of the hierarchy, communication can be easier and disagreement can easily be settled through authority. TCT confines the role of organizations to one of restricting the scope for opportunism compared to the market. This is not the view defended by the competence perspective (Moran-Goshal, 1996).

In sum, hierarchy, through the formation of routines may enhance efficiency compared to the market. And this is especially true as soon as you consider activities that are specific to the firm. Therefore, activities that need human specific investments are supposed to be

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<sup>9</sup> It should be noted that this is not the view that has been taken by TCT. Firms are supposed to try to economize on transaction costs. Those that do not succeed (and many do not succeed) are supposed to be pushed out of the business by competition pressure. That is why, in our view, TCT is more a normative than a positive theory of the firm.

<sup>10</sup> This view is surprisingly very close to the one developed in Coase 1937, where it is argued that a firm will integrate activities for which it has already developed knowledge necessary to its production.

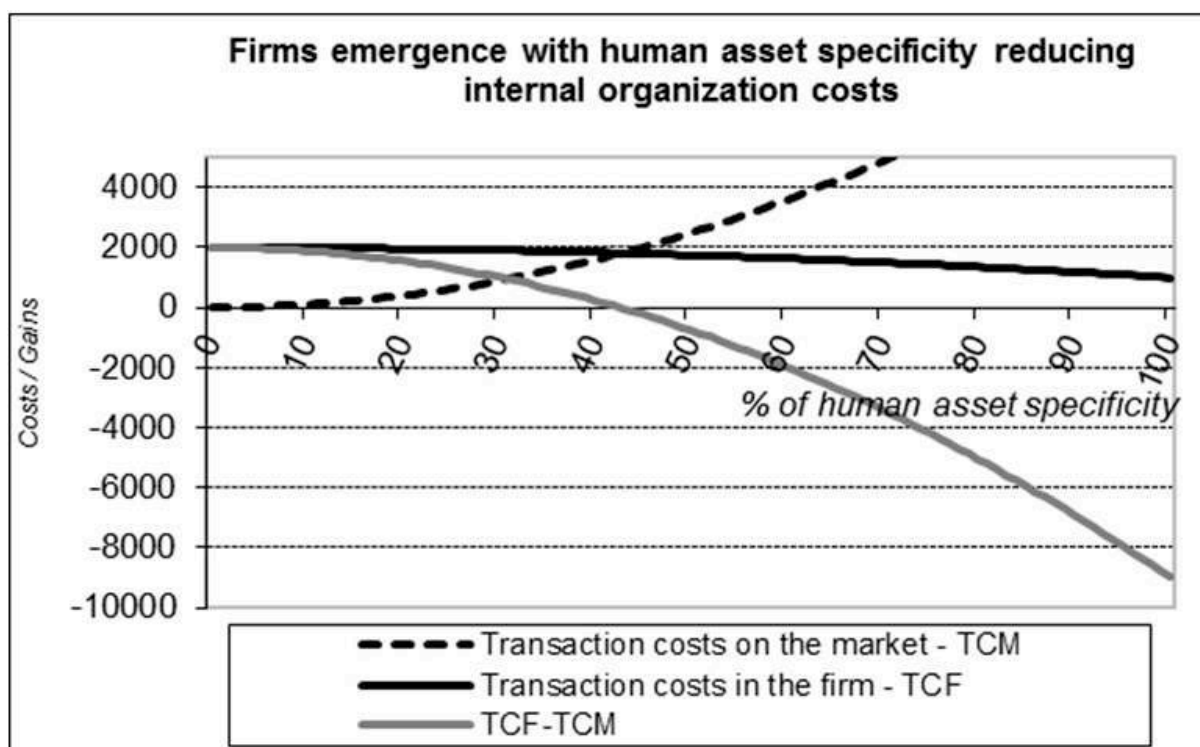
internalized due to the enhanced governance efficiency when specific asset are needed, especially because firms have advantages and more capabilities than the market to develop these specific human assets. In other words, transaction costs inside the firm are not increasing with human asset specificity, but decreasing with it. Hypothesis 1 is then not retained by the competence perspective (CP). Hypotheses 2 remains common to both approaches.

Hypothesis 1bis. The increase of human asset specificity creates value by decreasing production and transaction costs inside the firm.

Main Proposition concerning the integration decision (CP): transactions with high level of human asset specificity are more probably internalized because (i) the firm handles better such transactions that lower the cost of the firm and (ii) the firm naturally searches to develop specific human assets.

More formally, it means that asset specificity, and more particularly human asset specificity should lead to more integration because  $\beta_{tc} - \alpha_{tc} < 0$ , with  $\beta_{tc} < 0$ ,  $\alpha_{tc} > 0$ . That is to say transaction costs driven by specific human assets reduce transaction cost inside the firm and increase transaction costs on the market<sup>11</sup>. To illustrate this issue, we propose a quadratic form for transaction costs on the market and in the firm (See figure 2). Over a certain percentage of human asset specificity, the firm is the more adequate governance structure. We can note that this percentage threshold should be lower in the CP.

**Figure 2. Firms emergence with human asset specificity reducing internal organization costs**



With  $TCM = x^2$ ;  $TCF = 2000 - x^2/10$ ;  $x$ : % of human asset specificity

TCM: transaction costs on the market ; TCF: transaction costs inside the firm

<sup>11</sup> Twin benefits of high asset specificity and low transaction costs might also be accomplished through the market (Dyer 1997).

### 1.3. Discussion

Many questions and oppositions exist between alternative theories of the firm. This is also true concerning the transaction cost perspective and the competence perspective. The critics addressed by each theory to the rival perspective stresses many limits that have to be considered.

For example, according to many transaction cost economists, the question of why firms would do better than the market in terms of developing knowledge is not completely addressed by the CP. As noted by Foss 1996, separately owned activities may conceptually be much more “embedded” than divisions of the same firms (e.g. communication channels, shared culture, social knowledge). Why market should not be able to replicate what is supposed by CP to characterize firms over markets? That is especially a problem in a framework without any opportunistic behavior that is the framework retained by CP! The argument from TCT would be that because hierarchy can more successfully control opportunism, higher order organizing principles would emerge. Consequently it seems to us that the CP does not address convincingly the question of the limit to the firm size, that is a unavoidable question for a theory of the firm.

This contrast with the TCT framework, where differences between firms and market are more convincingly explained. Markets and hierarchies are supposed to have no identical access to fiat, firms enjoy the advantage over markets with respect to cooperative adaptation but not with respect to autonomous adaptation. Considerations of differential probity have been examined in the context of transactions where failures of loyalty and real time responsiveness could undermine integrity. The importance of cognitive specialization has also been featured. Nevertheless, it is only fair to say that cognitive specialization and the understanding of bureaucracy is underdeveloped in the TCT framework.

This is emphasized by Dosi and Marengo (2000), who qualified TCT as a “primitive” story that deals with the efficiency of different governance structures in managing transactions across given technologically separable interfaces: technology and the division of labor, e.g. the solution to the productive problem at hand, are taken as already in place in their optimal form. Assumption that what is being coordinated (i.e. the pieces of “productive knowledge”) is independent from the organizational arrangement itself. Whereas the competence perspective sees organizations as being first of all responsible for designing and putting to work solutions to productive problems and that specific organizational arrangements are essential parts of such as design process, actually determining which solutions can be generated and tested. Consequently, what is mainly reproached to TCT is its static view of the firm.

One possible view is to believe that there exists a complementarity between the two theories: “transaction cost economics informs the generic decision to make-or-buy while competence brings in particulars” (Williamson 1999:1097). Such a vision is reinforced by empirical tests in the CP framework that generally do not address the make or buy question to focus on differential of performances between firms. This position is defended by those named “integrationists” by Foss (2002). Nevertheless, as it is well noted by Foss (2002), CP and TCT’s position are hardly reconcilable (as they are shaped at the moment, they propose non compatible hypotheses<sup>12</sup>) and put other authors in the camp of “isolationists”.

However, we do not believe that one theoretical framework is able to answer completely the underlying question of why firms exist and what are the firm’s boundaries. Following

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<sup>12</sup> It remains that such incompatible hypotheses may be reconcilable as soon as you consider one might overstate the other depending of the considered environment in which the transaction evolves. As we will see later, the speed of technological change may permit to explain that in some cases, transaction cost mechanism to explain firm emergence is correct (Poppo-Zenger 1998 for defending such argument and section 2.2)



Holmström-Roberts (1998), we would say that a good theory of the firm is not only a story of investments incentives or transaction costs minimization broadly defined. We would expect the theory to incorporate such issues, but to take into account other issues such as resolving agency problems and knowledge transfers. The real question is to find how such a theory of the firm could incorporate all those elements together, putting good weight on each element.

Such a theory should be constructed with the help of empirical research, in order for the theory to draw lessons from the empirical literature about the relative usefulness of transaction-cost and the competence perspective theories of the firm. The up-shot is that we believe the majority of empirical works to be irrelevant to rule out competing views of the firm. As we will argue below, traditional empirical specifications of make or buy models are unable to comparatively test among alternative theories. We urge for more sophisticated models of comparative institutional performance to rule out alternative views.

## 2. What test to make theories compete each other?

### 2.1. The weakness of “traditional” empirical tests

On the one hand, transaction cost economics (TCE) is often viewed as an “empirical success story” (Williamson 1996). Recent surveys concerning empirical research using transaction cost analysis as theoretical framework exhibit more than 600 articles that empirically test some aspects of TCE theory (Boerner-Macher 2001). On the other hand, progresses are still to be made in order to conclude that TCE is a real empirical success story (Masten-Saussier 2002, Saussier 2004). Especially when we consider econometrical tests looking at the question of the make-or-buy. Such tests, based on qualitative econometric models (probit/logit estimates) do not permit to identify each coefficient of our simple formal model of section 1.

We would agree that despite the large body of empirical work that has been conducted to test TCT, most, if not all, of their findings are equivocal in their ability to confirm the underlying logical links on which the theory depends (Moran-Ghoshal 1996, page 67). The question is: Does hierarchy arise as a response to the increased hazards of market contracting? Or does internalization of those transactions lower their costs beyond what market governance can achieve, even without the threat of opportunism? Majority of TCE empirical tests do not permit to answer this question, that is, precisely the question that would permit to rule out competing views of RBV and TCE.

As noted by Masten, “such tests do not permit identification of structural relations that underlies those hypotheses. The hypothesis that asset specificity favors integration, for example, is based on propositions (i) that investments in relationship-specific assets increase the scope for opportunism and (ii) that internal organization attenuates opportunism relative to market exchange... A finding that asset specificity increased the likelihood of integration could result even if asset specificity had no effect on the hazards of market exchange... if for some reason, investment in relationship-specific assets reduced internal organization costs” (Masten 1993).

More formally, coming back to our simple model to illuminate how the decision to integrate might occur, and focusing again on transaction costs, the majority of empirical tests (probit/logit estimates) identify the sign of  $\beta_{tc} - \alpha_{tc}$ <sup>13</sup>. But it is one thing to say that  $\beta_{tc} - \alpha_{tc} < 0$  because  $\alpha_{tc} > \beta_{tc} > 0$  (that is to say transaction cost level is affected less positively in the firm compared to the market). Another thing is to say that  $\beta_{tc} - \alpha_{tc} < 0$  because  $\alpha_{tc} > \beta_{tc}$  with  $\beta_{tc} < 0$  and  $\alpha_{tc} > 0$  (that is to say transaction cost level is affected negatively in the firm, positively on

<sup>13</sup> Without entering in technical details, a probit model gives coefficients of the form  $(\beta - \alpha) / \sigma$ , where  $\sigma^2$  is the variance of (ea- $\alpha$ ). Predictions are based on the sign of  $(\beta - \alpha)$ . So, the less precise are manager’s perceptions, the smaller will be the estimated effect of a given characteristic of the studied transaction. The more inaccurate the selection process, and the less important organizational choices will appear in empirical tests

the market).<sup>14</sup> As noted by Masten (2002), a finding that asset specificity increases the likelihood of integration could result even if asset specificity had no effect on the hazard of market exchange ( $\alpha_{tc}=0$ ), or/and if for some reason, investment in relationship-specific assets reduced internal organization costs ( $\beta_{tc}<0$ ). In other words, the majority of econometrical tests of the make or buy decision might corroborate the transaction cost view of the firm as well as the resource based view of the firm. It is quiet embarrassing as empirical research, and more especially econometric works should be shaped in order to help us to determine probable explanations for the existence and boundaries of the firms.

One conclusion can be derived from such an analysis: Earlier studies have demonstrated only a relationship between the level of quasi-rents and the difference in the costs of transacting via the marketplace versus the costs of transacting within the organization that let place for the RBV and TCT's alternative views of the firm<sup>15</sup>.

## 2.2. A need to assess the impact of organizational choices on performances

To go a step further towards testing in order to disentangle alternative views of the firm, it would be useful to connect organizational choices and performances directly instead of limiting the analysis to the reduced-forms.

Let's represent a binary organizational strategy set ( $G_c, G_a$ ) corresponding to the make or buy issue and the corresponding performance outcome ( $\pi_c, \pi_a$ ). The crucial questions we have to answer in order to disentangle alternative views of the firm are: what would have been the performance, had the alternative strategy been chosen? And what is the effect of the organizational choice according to different values of exogenous variables (namely the characteristics of the transactions). These effects are the *organizational effects* we are interested in. To the first of these questions, TCT and CP views answer the same way; they only differ when it comes to the question of the effect of organizational choices regarding different values of human asset specificity.

Let's suppose we observe ( $S_c, \pi_c$ ) and ( $S_a, \pi_a$ ). We would like to estimate what their performance  $\pi_i$  might have been choosing another strategy  $S_i$  and what is the impact of a set of exogenous variables  $X$ .

If one want to estimate the following equations:

$$(4) \quad \pi_{ci} = \beta_c X_i + \varepsilon_{ci}$$

$$(5) \quad \pi_{ai} = \beta_a X_i + \varepsilon_{ai}$$

Equations 3 and 4 may be estimated by OLS, using the sub-samples of firms choosing  $S_c$  and  $S_a$  only to the extent that all exogenous relevant variables are well known by the econometrician and that the set of internally (externally) sourced observations is a random sample of all observations.

<sup>14</sup> We do not consider here another question that is to assess how important is the question of governance choice. As we wrote elsewhere (Saussier 2002) it is not well established how important it is to choose correct governance structure in respect with performances. Very few empirical studies are conclusive on this very important question: "While it is tempting to infer from findings that governance forms varies with characteristics of transactions that governance is important for performance, whether or not economics models of organizational choice are good predictors of actual behavior actually reveals little about the implications of organizational form for firm performance. In fact the opposite is closer to the truth: Variety in organizational forms is most likely to be observed where organizational form matters least, so that small changes in the underlying environment can tip the net benefit calculation from one arrangement to another" (Masten 2002, page 430).

<sup>15</sup> For example, rather than assume the fear for quasi-rent expropriation in a couple of studies (Monteverde 1982 a) 1982 b)) Monteverde is now arguing that "it may be the case that components produced internally by the auto companies are those whose efficient design and production requires dialog between engineers who, if they work within the same organization, have come to use the same firm-specific communication codes" (Monteverde 1995, page 5).

Nevertheless, it is usual to suppose there exist unobservable variables that affect performance outcomes and that are also correlated with the organizational choice. And it is natural to believe a firm that chose organizational choice  $S_c$  may differ from a randomly selected firm in the population of firms. As it has been well explained by Hamilton and Nickerson (2003) the estimation approach depends on whether such unobservable variables exist and whether organizational choices are endogenous or not. If all variables that affect both performances and organizational choices are not known or organizational choices are not exogenous, then, using OLS procedure when estimating equations (4) and (5) could lead to a potential endogeneity problem.<sup>16</sup> This obliges the researcher to use econometric methods (that are fairly routines now) to control for such endogeneity, like the Heckman procedures (See Hamilton and Nickerson (2003) for more on this). Such procedure allows to account for the characteristics of the transaction on performance (on the market or in the firm) while simultaneously correcting for the sample bias in the estimates.

The interesting thing is that there already exist a few empirical studies using performance measures and such techniques to disentangle CP and TCT's views. We present the two of them we are aware of in the next section.

### 2.3. *Two contributions that do not settle the discussion*

The way to rule out those competing views of the firm is to estimate structural models instead of reduced-forms. As far as we know, only two papers proposed such an analysis and concluded definitively for one of the different views of the firm (mainly RBV vs TCT) proposed in section 1. Surprisingly, one of the two papers written by TCT's authors (Masten-Meehan-Snyder 1991) concluded for the RBV view of the firm. The other, written by RBV's authors (Poppo-Zenger 1998) concluded for the TCT view of the firm.

#### *The organization of US naval shipbuilder (Masten-Meehan-Snyder 1991)*

Masten-Meehan-Snyder studied a sample of tasks and components from a large US naval shipbuilder. They collected through questionnaires data over 74 tasks and components and information concerning the cost of organization when such tasks and components were organized internally. Authors estimated the cost of organization by collecting data concerning the number of hours devoted by management to planning, directing, and supervising a particular component. As they have data concerning transaction costs in the firm, and data concerning sources of transaction costs (namely characteristics of the transaction operated in the firm or on the market), using Heckman method<sup>17</sup>, they infer transaction costs on the market and they found that "workers with more specific skills are less costly to manage" (page 18). Furthermore, they conclude that "the correlation between human capital specificity and the likelihood of integration ... is a consequence of a decrease in internal organization costs rather than the increase in the costs of market exchange" (page 19). Such results might highlight the gains of organization over markets when human asset specificity is involved in transaction and give weight to the RBV view of the firm, even if the sample used for the study is quite small.

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<sup>16</sup>  $E(\pi_c | S_c, X) = E(X_i \beta_i + \varepsilon_{ci} | S_c) = X_i \beta_i + E(\varepsilon_{ci} | S_c)$ . If  $\text{cov}(S_i, \varepsilon_{ci}) \neq 0$ , as would be the case if there are unobserved factors that affect both the choice of strategy and performance, then  $E(\varepsilon_{ci} | S_c) \neq 0$ .

<sup>17</sup> They first estimated a standard transaction cost model of the make or buy choice. They then reemployed results to estimate transaction costs in connection with characteristics of transactions, taking account of selection biases using Mills ratios calculated from the first step. For more on this method, see Hamilton & Nickerson (2003).

*The organization of information services (Poppo-Zenger 1998)*

Poppo-Zenger (1998) studied the governance of nine information services at 152 companies, resulting in a sample of 1 368 observations. Their test is thus more robust in terms of number of observations used compared to MMS's study. Nevertheless, it is also less precise in the way asset specificity is measured (no differentiation between each kind of asset specificity) and they only use qualitative measure of performances, without any focus on transaction costs. They found that contrary to the RBV hypothesis (hypothesis 2) managers do not become more satisfied with performance as internal activities become more firm-specific (Poppo-Zenger 1998, page 867). Furthermore, firm asset specificity has a strong negative effect on market performance and no clear effect on firm performance. Therefore TCT's view is corroborated as their empirical test clearly shows that asset specificity triggers governance choices because hierarchies more effectively cope with asset specificity than market. They explain such deceived result (to their own view) by the fact that the underlying technological change is rapid (Poppo-Zenger (1998), page 872). Routines, language and embedded forms of knowledge are thus rigid mechanisms that hamper performance (that seem to be just the reverse affirmation of Dosi and Teece, 1998).

Whatever the result of these two studies, we believe more empirical tests are to be made before to (definitively?) conclude. Nevertheless, we would like to point out that these two studies share something in common: In order to rule out competing views of the firm, they proposed refined tests compared to traditional empirical specifications of make or buy models that made TCT's empirical success story and that are unable to comparatively test among alternative theories. Such models, based on comparative institutional performance to rule out alternative views, are just attempts to estimate more structural model than before. In other words, instead of testing the sign of  $(\beta_{tc} - \alpha_{tc})$  or  $(\beta - \alpha)$ , by collecting information concerning transaction costs or firm performances, they tried to estimate  $\beta$ 's and  $\alpha$ 's. Such a way to proceed are real improvement as it permits to rule out competing views of the firm and furthermore to estimate how much important the governance choice in terms of performances is (Masten 2002).

*2.4. A need for case studies shaped in order to rule out competing views of the firm*

In parallel with more sophisticated econometric tests more detailed case studies should be conducted in order to assess more deeply intra firm coordination processes and costs. Such studies would permit to give insights concerning what is a firm and how it handles transactions necessitating high levels of specific assets, especially human assets. In our view, transaction cost economics focuses too much on factors aggravating market exchange with the underlying assumption that "substantially the same factors that are ultimately responsible for market failures also explain failures of internal organization" (Williamson 1973, page 316; Williamson 1996). Such assumption, if only correct, should be based on case studies providing us with more development concerning the hierarchy's failures. In other words, studies concerning intra-firm coordination might be of interest to understand the frontiers of the firms.

## Conclusion

This paper points out the fact that (i) several theoretical frameworks exist in order to explain the existence of firms, that (ii) are more substitute than complementary. In this paper, we do not discuss the coherence of those theoretical frameworks. We take as given the fact that they are sufficiently coherent to be of interest in order to understand why firms exist. We rather focus on empirical works that may help to choose between them. If many empirical studies

exist, we argue that (iii) very few are shaped in order to rule out competing views developed by the transaction cost theory and the resource based view of the firm. These conclusions raise the question of scientific methodology in empirical testing. For transaction cost economics to remain an empirical success story (with the assumption it is already a theoretical success story) and for resource based-view to be recognized as empirically relevant, it is time to shape empirical works in order to test one theory against the other one instead of simply corroborate propositions derived from only one theoretical framework. Without such effort, we can expect the coexistence of many theories giving different explanations of what is a firm and why they emerge. The question Coase raised long time ago is still at the top of our agenda and will stay as long as data will not be collected with more attention.

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*Abstract :*

What is a firm? What explains the trade-off between make-or buy decisions? Based on a discussion confronting the Transaction Cost Theory and the Resource-based view, we show that despite many empirical studies, very few are shaped in order to rule out competing views of the firm. The paper raises the question of the methodology of empirical testing: theories should be tested one against the other instead of simply corroborating the propositions specific to each theoretical framework.

*Keywords :*

econometrics, empirical testing, theory of the firm, vertical integration, transaction costs theory, Resources-based view

*Résumé :*

Comment expliquer l'existence de la firme, l'arbitrage entre faire et faire-faire ? À partir d'une comparaison des propositions de la théorie des coûts de transaction et de l'approche en terme de ressources, nous montrons que les travaux empiriques ne permettent pas de les départager. À partir d'une discussion sur la méthodologie empirique, nous avançons que les théories devraient être testées les unes par rapport aux autres au lieu de réaliser des tests qui corroborent les propositions qui leur sont spécifiques.

*Mots-clés :*

économétrie, modélisation et test, théorie de la firme, intégration verticale, Théorie des coûts de transaction, théorie des ressources