

Capital Structure of Foreign Direct Investments: A Transaction Cost Analysis

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Abstract Transaction cost theory (TCT) plays a major role in theorizing about the boundaries of the multinational enterprise (MNE), and is increasingly being applied to intra-MNE governance. We apply TCT to capital structure decisions for MNE subsidiaries. According to TCT, equity and debt are not just financial instruments, but alternative governance structures. Equity is useful for projects involving specific assets that do not serve well as collateral, and for knowledge intensive activities where information asymmetry and public good issues make external financing more costly. We study under what conditions MNE headquarters may wish to partially re-introduce market mechanisms inside the MNE through the use of external or internal debt to finance subsidiaries. This can allow economizing on governance costs and strengthen subsidiary manager incentives, but may be inappropriate if subsidiary assets are MNE-specific or subsidiary-specific. Empirically testable propositions are developed.

Keywords Capital structure · Foreign direct investment · Foreign subsidiaries · Transaction cost theory

1 Introduction

Although the hallmark of foreign direct investment (FDI) is that a company holds a sizeable share of equity in a business registered in another country, much of the capital employed in such a business will not be equity; it will be borrowed, either

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from external creditors (typically local sources) or in the form of intra-corporate loans.¹ According to the World Investment Report (UNCTAD 2013) 11% of the total FDI income over the period 2005–2011 was interest paid on debt between parent companies and subsidiaries or between subsidiaries of multinational enterprises (MNE). Non-parent debt represented about 80% of the debt of US MNE subsidiaries (Desai et al. 2004). What determines the capital structure decisions that MNE make for their FDI? In this theoretical paper, we take a transaction cost theory (TCT) perspective on FDI capital structure.

Companies make FDIs to ensure control over business activities that are most efficiently conducted abroad. Control is achieved by means of establishing an equity-based link (typically, a 10% equity share is required for the investment to qualify as an FDI) to a business entity—a foreign subsidiary—in another country.

According to transaction cost/internalization theory FDIs are made when internal governance (the firm) is considered as superior to external governance (markets and contracts) as a way of carrying out international business (IB) activities, due to (comparatively) inefficient or even missing markets (Buckley and Casson 1976; Hennart 1982; Rugman 1986; Teece 1986; Williamson 1981). An extensive empirical literature has largely corroborated the arguments that specific assets (referring to a lower value of the assets in alternative uses), knowledge (which is often tacit and hence difficult to transfer across organizational boundaries), and reputation assets (which are vulnerable to free-riding), lead companies to choose FDI over non-equity alternatives such as licensing; for an overview, see Zhao et al. (2004).²

Although Buckley and Casson (1976) also mentioned internalization of financial markets, the financial aspects of MNEs have received much less attention from the perspective of transaction cost and internalization theory. With an early proponent in Rugman (1980), such research has tended to focus on benefits from operating internal capital markets (e.g., Aulakh and Mudambi 2005; Nguyen and Rugman 2014). In particular, despite the increased focus on subsidiaries in IB research (Rugman et al. 2011) no study so far has considered to what extent transaction cost factors may explain subsidiary capital structure.³ MNE subsidiary capital structure has so far been the domain of financial economists demonstrating that the benefits of internal capital markets (Gertner et al. 1994) are augmented in the international context, where MNEs use capital structure strategically to overcome the limitations

¹ Some capital might be retained earnings (Lundan 2009), added to equity in FDI statistics (OECD 2008).

² An adjacent and similarly voluminous line of research has looked into whether companies choose full or partial ownership of the foreign entity (Buckley and Casson 1996), i.e., whether the entity is a wholly-owned subsidiary or a joint venture. While companies sometimes have good reasons for keeping some degree of control over given assets and activities, they also recognize that very tight control by means of complete ownership is not always required and may imply foregoing the potential benefits of teaming up with others (Benito 1996; Garcia-Canal et al. 2002; Gomes-Casseres 1989; Hennart 1988b). Again, there is ample empirical evidence for the role of transaction cost factors in shaping the ownership structure decision (Brouthers and Hennart 2007).

³ Hennart (1994) studied the choice between mediated and non-intermediated equity or debt for international financial transfers, but did not consider capital structure once an equity link has been established. Nguyen and Rugman (2014) studied capital structure as an explanatory variable for subsidiary performance.

of host country capital markets, to mitigate political risk, and to reduce the MNE's overall tax burden (e.g., Buettner et al. 2009; Desai et al. 2004).

However, there are good reasons to also consider subsidiary capital structure from a governance perspective. Although internalization of capital markets may reduce transaction costs compared to external markets, the fundamental factors driving transaction costs such as asset specificity, bounded rationality and uncertainty (Williamson 1975) do not disappear. Moreover, internalization can lead to new types of costs such as blunted incentives and intra-MNE rent-seeking. Hence, headquarters (HQ) can improve the functioning of internal capital markets by appropriate choices for internal governance.

Our key argument in this paper is that the use of debt in a subsidiary's capital structure, represents a partial reintroduction of market mechanisms inside the boundaries of a MNE, that can help strengthen subsidiary incentives and limit influence activities and rent-seeking. However, extensive use of debt may not be appropriate for subsidiaries characterized by specific assets and substantial external uncertainty. Our analysis builds on the transaction cost argument of Williamson (1988) that debt approximates a market mechanism, based on contractually specified repayments, providing strong incentives to project managers, but which is inappropriate when projects involve specific assets in the use of which adaptation to new circumstances is important and which do not serve well as collateral. In contrast, equity allows better monitoring and control, and thus more favorable terms of financing and better adaptation in the presence of non-redeployable specific assets which do not serve well as collateral.

In an intra-MNE setting, HQ formally have control rights to all assets, and may in principle intervene at any time to save the subsidiary's assets from liquidation. In this setting the question thus becomes under what conditions a commitment by HQ to rely on rules and enforce debt payments and liquidation is credible. We argue that each form of subsidiary financing is suitable under a specific set of circumstances in terms of the specificity of subsidiary assets.

First, using *external debt* to finance subsidiaries, the MNE essentially "outsources" some of the governance to external debt holders. However, if the subsidiary's assets are specific to the MNE, they have less value as collateral for external debt holders who would then offer less favorable financing terms—exactly as suggested in Williamson's (1988) original argument.

Second, the new instrument of *internal debt* that is available in the intra-MNE context could on its hand play a particular governance role in financing assets that are MNE-specific (precluding the use of external debt), but not subsidiary-specific (i.e., that they can be easily redeployed within the MNE) (Gertner et al. 1994).

Third, however, unlike previous studies of internal capital markets we argue that even within a company, not all assets may be easily redeployed. Hence, assets may be subsidiary-specific (Birkinshaw and Hood 1998; Rugman and Verbeke 2001). A high share of *equity* financing may then be preferred rather than debt to promote adaptation and avoid costly liquidation implying loss of subsidiary-specific assets. These arguments thus lead us to the main propositions that non-specific assets can be financed with external debt, MNE-specific assets can be financed with internal debt, while subsidiary-specific assets must be financed with equity.

Another contribution of the paper is to introduce and discuss the concept of system asset specificity, whereby the value of assets may depend on multilateral relationships rather than the bilateral relationships traditionally studied in TCT. System asset specificity is likely to be a characteristic of many modern MNEs with highly interdependent subsidiaries.

Our arguments are illustrated by a discussion of a particularly important form of specific assets, namely knowledge. While traditionally considered a public good with associated problems in using markets (Arrow 1962), recent theory also emphasizes the potential specificity of knowledge for instance due to complementary assets and human capital (Helfat 1994). Subsidiaries not only exploit knowledge assets from HQ as traditionally assumed, but also develop their own subsidiary-specific knowledge assets (Birkinshaw and Hood 1998). Knowledge assets are therefore an illustrative case of how subsidiary-specific assets can have implications for internal governance based on subsidiary capital structure.

While our general arguments also apply to domestic firms, the MNE provides a particularly fertile *analytic context* allowing us to push the arguments towards their limit (Roth and Kostova 2003). Spanning national borders, MNEs likely face higher internal intervention costs than domestic firms (Richter 2014). MNEs may also face particular challenges to redeploy assets, as some assets may be location-bound (Rugman and Verbeke 2001). Host-country regulations may restrict transfers of assets within MNEs, while some assets (e.g., local product adaptations) may have little value for other units of the MNE outside their original setting. Finally, the extreme specialization and interdependence between units characterizing many modern MNEs (Bartlett and Beamish 2014) is likely to imply substantial system asset specificity.

There is a rich, yet largely untapped, common ground between finance and IB (Agmon 2006; Bowe et al. 2010). Our paper contributes to the finance literature on internal capital markets (Kolasinski 2009; Scharfstein 1998; Scharfstein and Stein 2000) by exploring the implications of subsidiary-specific assets, a concept developed in IB (Rugman and Verbeke 2001). We also contribute to the IB literature on intra-MNE governance and subsidiaries (see e.g., Birkinshaw and Hood 1998; Bowe et al. 2010; Ghoshal and Bartlett 1990; Hennart 1991; Martinez and Jarillo 1989) and to the growing corporate governance literature within IB (Strange et al. 2009) by exploring capital structure as a new internal governance mechanism from a transaction cost perspective. Finally, our analysis also answers calls for management research with direct managerial implications (cf. Oesterle and Wolf 2011): According to our analysis subsidiary capital structure is a decision variable managers can use to improve intra-MNE governance.

Section 2 briefly reviews previous literature on capital structure decisions in MNE subsidiaries and positions our perspective in this literature. Section 3 presents Williamson's (1988) original TCT of financing, which is applied to FDI capital structure in Sect. 4, leading to a set of empirically testable propositions. In Sect. 5, we illustrate some of the arguments by considering MNE knowledge assets. Section 6 provides some remarks about empirical testing and reports some suggestive evidence. Section 7 provides a discussion and conclusion.

2 Capital Structure Theories and Subsidiary Capital Structure

The key theoretical basis for our study is Williamson's (1988, p. 579) financing theory which "regards debt and equity principally as governance structures rather than as financial instruments" and is an application of his TCT program (Williamson 1975, 1985). However, most research about capital structure had been based on other theories.

Capital structure theories at the corporate level can be divided into three main categories according to whether they emphasize, respectively, tax benefits of debt, information asymmetries or agency costs (Myers 2001). Following the *tradeoff-theory*, firms balance the tax benefits from debt due to deduction of interest payments (the interest tax shield), against the costs of financial distress (costs of bankruptcy or reorganization as well as agency costs that arise when the firm's creditworthiness is in doubt). A trade-off logic also applies in the extensive literature that links MNE subsidiary capital structure to international tax planning (Mintz and Weichenrieder 2010). Subsidiaries in countries with high corporate taxes can be financed with debt if interest payments are deductible from corporate profits. This tax incentive must however be balanced against costs such as increased risk of bankruptcy.

The intra-firm setting offers a new financing instrument, namely *internal debt* from HQ to subsidiaries. Since in this situation the lender is also the owner, internal debt has often been considered as equivalent with equity, but allowing tax deductibility. Chowdhry and Nanda (1994) assume that internal debt does not imply bankruptcy costs, an assumption we question later in this paper. In Chowdhry and Nanda (1994) external debt simply serves as a benchmark the MNE can use to justify internal debt interest rates to the tax authorities, and the optimal mix of internal and external debt is determined by the tradeoff between tax savings and the expected bankruptcy costs associated with external debt. In addition, local external debt may be used to finance subsidiaries in politically risky countries in order to reduce the amount of assets at risk (Chowdhry and Coval 1998), while internal debt may allow overcoming limitations of local external capital markets (Desai et al. 2004).

In contrast, the *pecking order theory* (Myers and Majluf 1984) focuses on asymmetric information issues between the investors and the corporation. The theory suggests that debt is safer for investors than equity when there is uncertainty about the value of the firm, as debt minimizes the information advantage of the firm's managers. As Myers (2001, p. 92) puts it, "[o]ptimistic managers, who believe the shares of their companies are undervalued, will jump at the chance to issue debt rather than equity. Only pessimistic managers will want to issue equity—but who would buy it?" Equity will thus be used when debt is costly, e.g., when the firm has a dangerously high degree of leverage, or when it cannot provide collateral. This implies a pecking order whereby firms prefer internal finance (i.e., retained earnings); if external finance is needed, debt will be preferred before equity.

In the context of a subsidiary, asymmetric information can in principle take two forms: Between the subsidiary and headquarters, and between the subsidiary (and

indirectly the MNE) and outside investors. In the latter case, subsidiary financing may follow a pecking order whereby internal capital market financing (internal equity or debt) is preferred, followed by external debt and finally external equity (i.e., joint subsidiary ownership) (Dewaelheyns and Van Hulle 2010).

Lastly, *agency-based theories* traditionally emphasize conflicts of interest between the firm's managers and its shareholders following delegation of control to managers (Jensen and Meckling 1976). Though monitoring and incentive contracts can mitigate self-serving behavior by managers (e.g., Fama and Jensen 1983), perfect monitoring is prohibitively costly, and as a result managers have some leeway to pursue their own interests. Jensen's (1986) free cash flow theory suggests using debt can constrain managerial discretion when firms lack profitable investment opportunities. Agency-based capital structure theories also consider the nature of the assets to be financed (e.g., Benmelech 2009; Benmelech and Bergman 2009). In adverse selection theories of debt, collateral is used as a signaling device by high-quality firms who are less likely to default and lose the collateral. In contrast, in moral hazard theories, low-quality firms post collateral in order to increase their pledgeable income.

Agency theory is also increasingly being used to study intra-MNE governance (Filatotchev and Wright 2011; Hoenen and Kostova 2015; Kim et al. 2005), but so far subsidiary capital structure has received little attention from a governance perspective. A notable exception is Kolasinski's (2009) study of external debt in operating subsidiaries of diversified companies, which uses agency theory as a basis and finds some support for the free cash flow hypothesis. The most closely related previous study to ours, and to our knowledge the only study of MNE subsidiary financing explicitly considering the nature of subsidiaries' activities is Marin and Schnitzer (2011). In their study, research and development (R&D) is assumed to involve an effort problem on the part of the subsidiary manager and it is hence important to motivate the subsidiary manager by using equity.

While these studies provide important insights, they have less to say about how one should finance subsidiaries that differ in terms of the specificity of their assets. This is the key contribution of our theory. In the following we first describe the main features of Williamson's (1988) finance theory before applying it to the MNE subsidiary capital structure setting.

3 Williamson's Transaction Cost Analysis of Capital Structure

TCT argues that economic efficiency requires a discriminating alignment of governance structures with characteristics of the transaction; in particular asset specificity (implying assets have a much lower value in alternative uses outside the relationship), and the degree of external uncertainty.⁴ Given that bounded rationality (Simon 1961) prevents the parties from writing complete contingent contracts under conditions of uncertainty, contracts will be vulnerable to opportunism as some

⁴ A third relevant characteristic of transactions according to TCT, their magnitude (volume and frequency) is not discussed in Williamson (1988) and is omitted also in our discussion.

individuals will seek to take advantage of the situation e.g., by withholding information. Yet, TCT argues that even though the parties to a transaction are boundedly rational, they are able to foresee contractual hazards coming and devise appropriate solutions (Williamson 1996). In particular, when transactions involve highly idiosyncratic investments, and there is significant external uncertainty, internal governance will have several advantages. Necessary adjustments can be mandated and costly haggling avoided. Also, internal organization curbs opportunism by allowing more effective auditing and by instituting quasi-judicial functions that help avoid the costly court disputes sometimes associated with market transactions. Internal organization thus reduces enforcement, information and bargaining costs for transactions characterized by asset specificity and external uncertainty.

Applied to project financing, transaction cost theory suggests that in terms of its governance properties, debt is more “market-like” and rule-based (Williamson 1988). If scheduled repayments are not made, the project is liquidated, and debt-holders recover their value to the extent that the project’s assets are redeployable. This implies that for less redeployable assets, the terms for debt financing will be less favorable. In turn, unfavorable financing terms lead companies to forego specific investments (e.g., in custom-made machinery) that would improve performance in terms of costs or quality, but which have little value outside the project and cannot serve as collateral. This effect will be particularly strong when there is substantial external uncertainty preventing the writing of relatively complete contracts regarding use of the specific assets. Since greater uncertainty implies more frequent need for adaptation, debt is less suitable as it could hinder necessary adaptation and lead to undesired liquidation and losing valuable specific assets.

Rather than forego beneficial specific investments, however, managers may raise funds through equity which gives the providers of funds cash flow rights to the project’s earnings and assets as well as control rights through instituting a board of directors with superior access to information and powers to review proposals and decisions and perform monitoring and audits. These added controls represent assurance to the providers of funds and also help address maladaptation as investors and project managers can try to work out problems rather than immediately resorting to liquidation.

Thus, to sum up, while debt is more market-like, equity has stronger characteristics of hierarchy. By allowing investors more control equity can be used to finance assets with limited redeployability, whereas debt would imply higher financing costs and potentially loss of the specific assets in the case of maladaptation.

4 A Transaction Cost Theory of FDI Capital Structure

4.1 New Aspects of the Intra-MNE Context

In contrast to the setting discussed by Williamson (1988), in the intra-MNE setting governance takes place in a “sub-economy” where HQ nominally owns all assets

(Holmstrom 1999) and where an internal capital market replaces the external capital market as the (main) source of funds for the individual business units (Poppo 1995). Internal governance needs to take into account not only the HQ-subsubsidiary relationship, but also the relationships between subsidiaries (Holmstrom 1999). Compared to external capital markets, several important features of internal capital markets have been identified in the literature. On one hand, the literature points to benefits of internal capital markets in terms of reducing information asymmetries, allowing HQ to allocate capital to projects more efficiently than external financial markets (Williamson 1975). Moreover, assets are assumed redeployable within the MNE, meaning that there are no internal bankruptcy costs (Chowdhry and Nanda 1994). If a subsidiary creates problems, HQ has control rights to replace the manager or to instruct other subsidiaries to take over and use the subsidiary's assets, and hence preserve most of the assets' value even if the original project is liquidated (Gertner et al. 1994).

On the other hand, studies have also pointed out disadvantages of internal capital markets in terms of blunted incentives for subsidiary managers to invest and run the subsidiary efficiently. Moreover, internalization may imply internal rent-seeking and influence activities whereby subsidiary managers are lobbying HQ for resources and preferential treatment (Inderst and Laux 2005; Scharfstein and Stein 2000). We next discuss this from the perspective of recent literature on internal governance costs.

4.2 Governance Costs and Limited Redeployability of Assets within MNEs

Although in principle HQ have control rights over all subsidiary assets, HQ will in many cases decide not to exercise strict control over all subsidiary operations. Hennart (e.g., Hennart 1991, 1993) distinguishes between the *method of organization* (price versus hierarchy) and the *institutional form* (market versus firm). Although the firm is traditionally associated with hierarchy, Hennart (1993) notes that even within firms one often sees a mix of price and hierarchy, reflecting relative governance costs and benefits of these two organizational methods. Hence, even assuming that, in principle, HQs could control the use of all assets, HQs may in some cases want to step back and reintroduce the price mechanism within the MNE in order to limit governance costs and mitigate the inherent problems of hierarchical governance.

Indeed, modern MNEs are often decentralized and allow many subsidiaries significant independence (Cerrato 2006). In particular, it has been argued that since intervention in subsidiary operations involves bureaucratic or information costs, HQ will choose to intervene only when the expected benefits of doing so are sufficiently large (Shelanski 2004). In these cases, it may be rational to opt for a governance structure that ensures more control at the outset, which Williamson (1988) has argued is what equity financing implies. Conversely, however, when there is less need for control, HQ may opt for market-based governance to economize on

governance costs and strengthen subsidiary incentives.⁵ Several studies have suggested that TCT arguments are also relevant for intra-MNE governance, as coordination problems will not disappear with integration (Buckley and Strange 2011; Shelanski 2004; Spicer 1988; Tomassen and Benito 2009; Tomassen et al. 2012). Shelanski (2004) argues from a TCT perspective that the expected net benefits of control will be greatest in the cases where it is most crucial to promote investments in specific assets, and where working out problems that might arise (i.e., ensuring adaptation) is most important. Thus “[f]or transactions expected to require frequent *ex post* intervention, headquarters may find it less costly to plan from the outset to engage in more regular, systematic intervention” (Shelanski 2004, p. 954). Transfer pricing studies hence argue that critical transactions between subsidiaries and between subsidiaries and HQ are better governed administratively, while less critical transactions are left to negotiation between subsidiaries (Colbert and Spicer 1995; Shelanski 2004; Spicer 1988; Spicer and Ballew 1983). HQ intervention is reserved for the most essential transactions and the ones for which it is crucial to promote desirable specific investments. In order to prevent costly haggling between subsidiaries, with potentially detrimental consequences for the entire MNE, HQ mandates certain transactions and set prices administratively. For less essential and relatively standardized transactions, however, subsidiaries can be given more freedom both in setting prices and in choosing with whom to trade. In many cases, subsidiaries even trade with entities external to the company (Eccles and White 1988).

We propose here that a similar argument applies to subsidiary capital structure. Whenever close control is not needed, HQ may have an interest in using debt in the subsidiary’s capital structure. HQ can either make loans directly to the subsidiary (internal debt), or the debt can even be held by external financiers. However, in both cases, since HQ owns the subsidiary and has the right to intervene at any time, the question is when it is credible for HQ to refrain from intervention and instead allow debt contracts to be enforced, even if this could ultimately lead to the liquidation of the subsidiary.

The argument we develop in the following is that a HQ commitment to enforce debt contracts is credible when the subsidiaries do not possess specific assets that would be lost when doing so. While previous internal capital market studies have assumed that assets can be freely redeployed within firms, in practice this assumption may be unrealistic. First, even within a company, it may not be possible to define or enforce property rights to all types of assets (Mudambi and Pedersen 2007; Tomassen et al. 2012). That is, even internalization may not ensure complete ownership of all types of assets, since “many important, even crucial assets often reside with employees and outside parties—for example, unique knowledge and relationships” (Tomassen et al. 2012, p. 2). Subsidiaries are not only exploiting technology and other company-

⁵ Continuous intervention by top management in the affairs of a large and complex system of subsidiaries will strain their resources. Hence, MNEs typically re-organize into a multi-divisional form (M-form) as their size and complexity increases (Stopford and Wells 1972; Wolf and Egelhoff 2002). As pointed out by Williamson (1975), the M-form’s effectiveness is due to both the introduction of internal markets for allocation of corporate resources (such as capital), and the economizing on managerial attention and resources from using simpler, uniform decision rules, such as return on capital invested.

specific advantages developed by HQ (as often assumed in the early MNE literature). Instead, many develop subsidiary-specific assets and have competence-creating mandates (e.g., Birkinshaw and Hood 1998; Cantwell and Mudambi 2005; Rugman and Verbeke 2001) and are strongly embedded in local interorganizational networks (Andersson and Forsgren 1996), meaning the subsidiary's assets are no longer fully separable from the manager and the employees.

Moreover, some subsidiary advantages are location-bound and can only be exploited within a certain national context, for instance due to national path dependencies in knowledge development (Rugman and Verbeke 2001, p. 240). Further, an especially relevant factor in the international context is that government regulations may restrict asset transfers between countries. Also, some market and product development expenses are likely to be country-specific, in order to adapt products to local tastes and devise appropriate marketing activities (Bartlett and Ghoshal 1989). Such local adaptations may have less value for subsidiaries operating in different contexts.

Finally, many MNEs are tightly linked systems (Cerrato 2006), where subsidiaries may perform specific tasks not replicated elsewhere in the system (Ghoshal and Bartlett 1990) and may possess assets that are not easy to transfer to other subsidiaries, at least in the short run. This may lead to a distinct form of asset specificity linked to the subsidiary's role in the system with complementary assets in other subsidiaries.

For all these reasons, HQ control rights and their ability to redeploy subsidiary assets to other subsidiaries may be incomplete, and assets may be subsidiary-specific.

4.3 Discriminating Use of Equity, Internal Debt and External Debt to Finance Subsidiaries

The key question we are asking in this paper is under what conditions HQ may want to reintroduce market mechanisms internally in the MNE by financing subsidiaries with debt. Debt financing may come either from external sources (external debt) or from intra-corporate lending (internal debt). Each form of debt has its own particular implications from a transaction cost perspective. These implications have to do with HQ's ability to commit to let debt contracts be enforced, as well as with costs of finance. Both are related to the redeployability of assets and the possibility of writing complete contingent contracts.

Some examples may help make this more concrete. Consider first an MNE seeking to finance a general-purpose office building in the capital of some host country. Since the building can be easily used as collateral, external debt financing is viable. Moreover, a commitment of HQ not to intervene and "save" the subsidiary is more credible since the MNE would not risk losing important specific assets.

Consider next company-specific knowledge (e.g., company-specific software) that can easily be combined with other assets of the company, but having little collateral value for external financiers. If such knowledge can be costlessly transferred within the MNE, internal debt may be an option. Internal redeployability of

assets implies that liquidating the subsidiary would not lead to the loss of important specific assets for the MNE. Moreover, an advantage of internal debt is that it may be offered on more favorable terms than external debt for assets that are relatively more easily redeployable within an MNE.

Finally, consider a location-bound subsidiary-specific advantage related e.g., to development of locally adapted products. Since such knowledge is of little value to other units of the MNE (notably, units in other countries), it is more difficult for HQ to commit to letting external or internal debt contracts be enforced. Enforcement of debt contracts could hinder necessary adaptation related to specific assets, and even lead to liquidation of the subsidiary and hence loss of its specific assets as the assets cannot be transferred to other parts of the MNE. Hence, when assets are subsidiary-specific, equity may be preferred to ensure control and adaptation.

In all these cases, it is assumed that there is a level of external uncertainty that prevents writing reasonably complete contracts for the use of the specific assets. MNEs often face environments with significant external uncertainty, notably in terms of political risk, implying a stronger tendency to use equity rather than debt (Anderson and Gatignon 1986).

These arguments lead to our core propositions of this paper. In the following, we provide a number of propositions extending these.

Proposition 1a–c In the presence of high external uncertainty,

- a. *Subsidiary-specific assets that have limited redeployability both within the company and outside the company are more likely to be financed by equity.*
- b. *Company-specific assets that are redeployable within the company, but not redeployable outside the company, are more likely to be financed by internal debt.*
- c. *Non-specific assets are more likely to be financed by external debt.*

4.4 System Asset Specificity

As noted, HQ does not only need to consider transaction costs and governance in the direct HQ-subsubsidiary relations, but also in the relationships between its various subsidiary units. In other words, HQ needs to take a more systemic view of transaction costs, to ensure each unit makes desirable specific investments promoting the performance of the entire system (Shelanski 2004). We refer to this as *system asset specificity*, which can be seen as the multilateral counterpart of bilateral or dyadic asset specificity, the focus of TCT so far. System asset specificity implies that the value of the subsidiary's assets will be lower in alternative uses outside a given multilateral relationship. As Williamson (1985, p. 393) notes, TCT "(...) normally studies each trading nexus separately", and though this is "(...) useful for displaying the core features of each contract, interdependencies among a series of related contracts may be missed or undervalued as a consequence". However, Williamson (1996) argues that TCT also lends itself to network arguments, and the TCT-based studies of transfer pricing policies mentioned above have implicitly taken this perspective.

Such intra-MNE system dependence was previously studied from the perspectives of resource dependence theory and inter-organizational networks theory (e.g., Andersson and Forsgren 1996; Forsgren and Pahlberg 1992; Ghoshal and Bartlett 1990), but can be reinterpreted within a TCT perspective using the system asset specificity concept. If the assets of a subsidiary are crucial also for other units and are difficult to replace or redeploy, enforcing debt contracts with associated risk of liquidation could also imply that complementary assets in other subsidiaries lose value, leading to additional externalities for the whole system. In the simple illustration in Fig. 1, subsidiaries A and B are more interdependent with the rest of the system than subsidiary C. It is unlikely that these subsidiaries would be financed with debt, since the reliance of the rest of the system on these subsidiaries makes a commitment by HQ to let them fail less credible.

MNEs pursuing global and transnational strategies are a prime example of the relevance of such interdependencies (Yip 1989): Many subsidiaries perform a highly specialized activity in the location that makes most sense both from the viewpoint of the activity itself and its connections to the other subsidiaries performing adjacent, but separate value activities. Given scale economies that make it possible to confine each activity to a given globally-scaled unit (subsidiary), the MNE would abstain from replicating a given activity elsewhere since that would lead to unnecessary costs. However, reliance on particular subsidiaries also makes the whole system extremely interdependent. The opposite situation is found in a conglomerate covering many unrelated businesses. On one hand, in a conglomerate the internal redeployability of assets may be limited given that units in the MNE are quite different from each other and hence may not be able to usefully exploit other

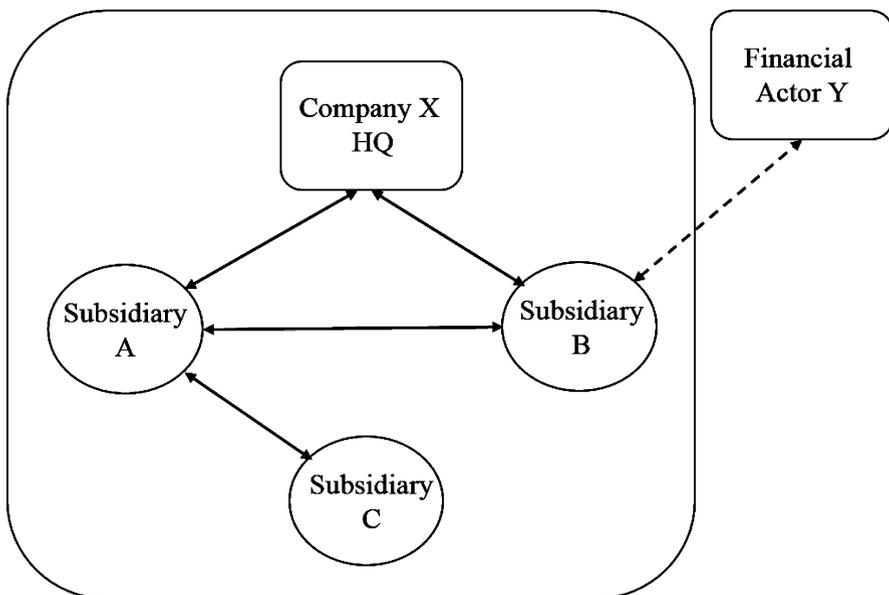


Fig. 1 Subsidiary and company specificity versus system specificity

subsidiaries' assets. But more importantly, loss of assets in a given subsidiary in a conglomerate is likely to have less serious consequences for the MNE as a whole, given that the other subsidiaries of the MNE do not strongly rely on these assets. That is, the assets are not very system-specific.

The preceding discussion can be summed up in two propositions:

Proposition 2 System specific assets (i.e., assets having less value outside a given multilateral relationship, and which loss would impact the entire MNE) are more likely to be financed with equity rather than with internal or external debt.

Proposition 3 MNEs with highly interdependent subsidiaries use less debt financing of their subsidiaries than MNEs operating as conglomerates.

4.5 Subsidiaries' Discretion in Taking Up Debt

So far, we have assumed that HQ decides on the capital structure of subsidiaries. However, in principle a subsidiary could be allowed to raise additional funds in external capital without interference from HQ, rather than this decision being centralized. Our transaction cost perspective indicates that such discretion will not be given to subsidiaries possessing specific assets. One reason is that this could lead to a moral hazard problem whereby subsidiaries incur excessive debt, anticipating that HQ will intervene to pay their debts in order to avoid losing specific assets.

A second question relates to whether subsidiaries have the discretion to incur internal debt to other subsidiaries of the same MNE. Such discretion could have certain advantages in terms of governance for HQ. HQ may be more concerned about the aggregated transaction costs of the system as a whole than those associated with single subsidiary–HQ or subsidiary–subsidiary relationships. Rather than minimize bilateral transaction costs between any given pair of subsidiaries, HQ may deliberately induce bargaining costs between subsidiaries, in order to extract private information that can be used for governance purposes. Such strategies have been suggested in transfer pricing (Eccles and White 1988; Holmstrom and Tirole 1991; Spicer 1988), and allowing subsidiaries to lend to and borrow could have similar benefits for HQ. Moreover, if assets are unspecific or MNE-specific, HQ can credibly commit not to intervene. However, when subsidiaries possess subsidiary-specific assets, inducing haggling between subsidiaries could potentially lead to the loss of specific assets. Thus, we propose:

Proposition 4a A subsidiary's discretion in lending to and borrowing from units external to the MNE is negatively associated with subsidiary-specific and company-specific assets.

Proposition 4b A subsidiary's discretion in lending to and borrowing from other subsidiaries within the MNE is negatively associated with subsidiary-specific assets.

5 Application: Financing of Subsidiary Knowledge Assets

A key factor in the internalization theory (Buckley and Casson 1976) of the MNE is knowledge assets. According to the classical view, knowledge is a public good whereby its use by one actor does not exclude its use by another actor. However, if innovators cannot appropriate the returns on their investments because innovations are easily imitated by others, the incentive to innovate is reduced. Further, there are particular problems in the trading of knowledge as the buyer will be uncertain about its value, but by revealing too much about the knowledge the seller will already largely have transferred it (Arrow 1962). In terms of capital structure, David et al. (2008) argue from an appropriability perspective that equity provides better protection against dissipation of knowledge assets, compared to debt, which requires publication of details about the asset. Thus, external debt is likely to be problematic for knowledge assets.

However, an alternative perspective on knowledge suggests that it is not always a public good. Knowledge assets are characteristically dependent on the social context within which they are developed and transferred (Kogut and Zander 1992). Helfat (1994) argues that much R&D is company-specific because it is tied to the use of other company-specific assets. This makes it more difficult for other companies to benefit from the knowledge and tends to imply greater appropriability of knowledge assets.

Something similar might be true within the MNE. R&D at the subsidiary level could lead to assets that are to some extent subsidiary-specific, for instance because they are tied to other subsidiary-specific assets and tied to human capital in the subsidiary. This implies that even within an MNE, knowledge may not be a public good, unlike what was assumed in early internalization theory. Instead, subsidiaries may themselves be sources of knowledge and FSAs for the MNE (Birkinshaw and Hood 1998). If this knowledge is subsidiary-specific, using internal debt to strengthen subsidiary incentives may be inappropriate, since maladaptation or failure of the subsidiary could lead to loss of knowledge assets with potentially detrimental consequences for the MNE as a whole. A cost of not being able to rely on rules, of course, will be greater bargaining power for competence-creating subsidiaries. Subsidiary bargaining power is not a new idea in the literature, but our new theoretical formulation traces this bargaining power largely to subsidiary specificity (and potentially systemic specificity), thus illustrating the scope for transaction theory to explain also intra-MNE governance.

6 Some Preliminary Empirical Insights

Our transaction cost analysis of subsidiary capital structure offers a series of propositions, which can be empirically tested. Some of the propositions can be tested using FDI accounting data at the subsidiary level, by making assumptions regarding the specificity of various intangible and tangible assets in subsidiaries' balance sheets, which we are currently exploring in related empirical work. Testing

some of the other propositions (including Proposition 2 relating to system asset specificity) will require access to more detailed data, including information about contracts and perhaps also data that convey the opinions and perceptions of decision makers.

It is also likely that industry characteristics in terms of capital structure will have implications for the arguments here.⁶ While it is beyond the scope of this paper to provide formal empirical tests, it is useful to provide some exploratory insights. For that purpose, we used the Kapital 500 list to identify the 30 largest foreign-owned subsidiaries in Norway in 2016. As a preliminary examination of Proposition 1a–c, we used Kapital 500 and Proff Forvalt to obtain data (2016) on these companies' equity-ratios (i.e., equity/total assets). As shown in Table 1, the ratios vary substantially; from a low 8% for IKEA Norge (a retailing company), to a very high 81% for Baker Hughes Norge, a company that provides oil and gas supplies and services.

A proper test of the proposition requires detailed data on the asset composition of firms, especially about their specificity and their redeployability. Such data are not available at the company level from secondary sources like Proff Forvalt. However, we know the industries the companies operate in, which vary considerably regarding representative levels of asset specificity and redeployability. Banking and retailing (six companies) have generally low levels of specialized physical assets, and low sunk costs in plant and equipment. Oil and gas operators (10 companies) rely on fairly standard technology, and while they use highly specialized physical assets, e.g., in terms of oil rigs and platforms, the assets are specific to the industry, rather than to a given company (Davis 2016). Hence, transactions amongst oil and gas operators are commonplace. Also, assets are relatively mobile (although at a cost) and can be transferred from one oil field to another. The metal industry (two companies) is known for relatively high asset specificity, since specialized equipment results in lock-into incumbent suppliers (Hennart 1988a). In Norway, there is also site-specificity due to locating plants close to hydro-energy sources, yet also accessible to large cargo vessels. The six companies in oil services (such as subsurface, drilling and well) typically use technologically advanced and specialized equipment and competence, sometimes even unique to a particular project. Finally, six companies have been classified as “other industry”. Being singular cases, these companies have little in common with respect to specificity and redeployability.

To examine whether there were any discernable differences across industries, we calculated the average equity ratio for each industry (see Fig. 2): banking and retailing (0.12), oil and gas (0.17), other industry (0.31), metals (0.41), and oil and gas supplies and services (0.46). The ranking is largely in agreement with what could be expected, given our preceding description of industries in terms of asset specificity. In industries where assets are standardized and mobile, equity ratios tend to be low, whereas in industries characterized by high asset specificity, equity ratios are markedly higher.

⁶ We thank an anonymous Reviewer for making this point.

Table 1 30 largest foreign-owned companies in Norway, ranked by sales 2016

Rank	Name	Industry	Sales in 2016 (mill NOK)	Equity ratio 2016 (%)
1	ExxonMobil E&P Norway AS	Oil and gas operations	51,664	35
2	Subsea 7 Norway	Oil and gas supplies and services	38,417	68
3	Total E&P Norge AS	Oil and gas operations	30,423	20
4	National Oilwell Varco Norway	Oil and gas supplies and services	29,445	35
5	AS Norske Shell	Oil and gas operations	26,064	12
6	Nordea Norge	Banking	21,968	9
7	Conoco Phillips Norge	Oil and gas operations	17,867	17
8	Circle K Norge	Retailing (gasoline)	15,836	11
9	Elkem	Metals	14,541	44
10	Eni Norge AS	Oil and gas operations	12,712	10
11	Skanska Norge	Construction	12,319	26
12	Engie E&P Norge	Oil and gas operations	11,890	11
13	Dong E&P Norge	Oil and gas operations	11,296	11
14	FMC Kongsberg Subsea	Oil and gas supplies and services	11,068	22
15	Archer	Oil and gas operations	10,667	16
16	Schlumberger Norge	Oil and gas supplies and services	9301	32
17	ABB Holding	Energy and automation technologies	9283	17
18	TeliaSonera Norge	Telecommunications	9242	46
19	Wintershall Norge	Oil and gas operations	8752	22
20	BP Norge	Oil and gas operations	7935	16
21	Alliance Healthcare Norge	Retailing (drugstores)	7229	9
22	Santander Consumer Bank	Banking	7139	11
23	IKEA Norge	Retailing (interior design)	7083	8
24	Nexans Norway	Cables	6577	16
25	Siemens Norge	Industrial conglomerate	6423	27
26	Alcoa Norge	Metals	6236	37
27	GE Healthcare	Industrial conglomerate	5863	56
28	Halliburton	Oil and gas supplies and services	5790	36
29	Baker Hughes Norge	Oil and gas supplies and services	5509	81
30	Bilia Norge	Retailing (automobiles)	5503	21

Sources: <http://www.kapital500.no> and Proff Forvalt

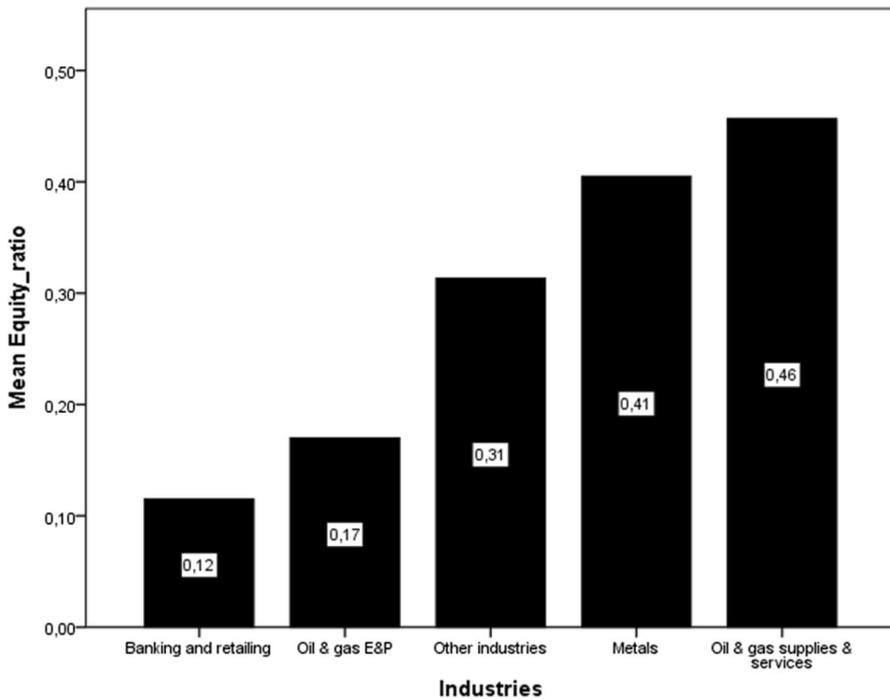


Fig. 2 Average equity ratios in different industries: the 30 largest foreign-owned companies in Norway, 2016

Of course, the analysis presented here is simple, the results are tentative, and they do not allow any strong conclusions to be drawn. After all, our theory is at the level of companies (i.e., registered units), and any analysis at the industry or sector levels would mask significant heterogeneity across units. Still, the observed patterns are interesting and merit further investigation.

7 Discussion and Concluding Remarks

7.1 Theoretical Implications

Our application of Williamson's (1988) finance theory, where debt and equity are seen as alternative governance structures, to subsidiary capital structure has introduced novel arguments and predictions to the literature. We provide a novel explanation for the use of debt in subsidiary financing based on the idea that debt can help limit resources spent on intervention, strengthen subsidiary manager incentives and curtail intra-MNE influence activities. In the case of internal debt, we outline a novel rationale for this financial instrument when subsidiary assets may be easily redeployed inside the MNE. However, our theory also suggests limits to such strategy in cases where assets are subsidiary-specific and cannot be easily

redeployed within the MNE. Although MNEs have proven to be a very useful analytical setting for these arguments, our arguments are broader and have implications for the internal capital markets literature. Specifically, our arguments suggest that an advantage of internal capital markets over external capital markets (Bolton and Scharfstein 1998) depend on significantly lower governance costs of the units involved as well as a higher redeployability of their assets internally.

Like previous studies on internal governance costs (e.g., Benito and Tomassen 2010), our analysis also demonstrates the power of employing “symmetric assumptions” in theory development (Foss and Hallberg 2013), by applying the assumptions of transaction cost theory to the intra-MNE setting. Compared to previous analyses, our analysis implies a shift in the level of analysis. Williamson’s analysis of finance is applied to the corporate level, although he recognizes the issues relating to aggregating from projects to corporations (Williamson, 1988, 1996). We focus on entities established through FDI, i.e., subsidiaries formed and registered abroad, and which are business units on their own right. This entails principally that they have their own balance sheet and P&L statement, and often times also a board. In such a context, it makes sense to conceptualize assets broadly as the bundle of assets formally under the subsidiary’s control. By acknowledging that the fundamental assumptions on bounded rationality and opportunism still apply inside MNEs, and that specificity may exist at sub-firm levels (Rugman and Verbeke 2001), we have been able to derive hitherto unexplored implications for capital structure of already existing FDIs. The study of internal capital markets where subsidiaries more closely approximate projects and are bundled together within a firm may also in future research go some way towards addressing the aggregation issue in Williamson’s theory.

7.2 Managerial Implications

We complement previous analyses of FDI capital structure focusing on tax issues (Mintz and Weichenrieder 2010), by demonstrating theoretically the additional relevance of transaction cost considerations. The key managerial implication arising from our analysis is that subsidiary capital structure can play a role in efficient internal governance of the MNE, along with other methods of governance such as MNE structure, formalization and socialization (Bartlett and Beamish 2014).

7.3 Limitations and Directions for Future Research

Some issues have not been treated in our analysis and could be explored in future work. These include possible transaction cost rationales for external debt that is guaranteed for by the parent company (Kolasinski 2009). In addition, as pointed out initially, the FDI capital structure decision is related to the decision on foreign operation mode, and the decision on ownership structure in the subsidiary. While the three decisions may be interrelated, we treat them as taking place sequentially, implying that we take the two former decisions as given when we discuss capital

structure.⁷ We also abstract from possible conflicts between co-owners relating to capital structure and focus on one parent firm that decides on capital structure for its subsidiaries. Future work could consider these decisions in conjunction as well as the implications of allowing for two or more influential owners in the subsidiary (joint ventures).

Further, while our analysis here took the specificity of assets as given, specificity will itself be a result of previous decisions by the company. Since internalization does not imply zero governance costs and perfect redeployability of all assets, one reasonable proposition is that subsidiary specificity increases subsidiary bargaining power towards HQ (Mudambi 2011). A general analysis also looking at the specificity choice could suggest a trade-off where HQ in some circumstances choose to limit specialization and subsidiary specificity (hence sacrificing some productive efficiency) in order to avoid substantial ex post governance costs and intra-MNE rent-seeking.

Finally, our analysis has assumed that HQ aim to maximize economic performance in the first place. However, some studies have argued that internal capital markets could also be used to avoid external capital market monitoring (Cline et al. 2014). Thus, in principle there is the possibility that HQs and subsidiaries may collude against outside financiers. The implications of this for our arguments could be explored in future work.

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⁷ Some evidence of sequential decisions exists in previous literature. Gatignon and Anderson (1988) find MNEs first make a dichotomous choice between integration and shared ownership. If integration is ruled out, the firm turns to the choice between non-integrated options. Ruiz-Moreno et al. (2007) also find evidence of a two-stage process in FDI decisions, arguing bounded rationality limits MNEs' ability to make all decisions simultaneously.

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