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The internal allocation of rights within the firm and the creation of competitive advantages

Internal Allocation of Rights within the Firm and the Creation of Competitive Advantages

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ABSTRACT

This study draws on property rights theory to gain new insights into the allocation of rights to competitive advantages *within the firm*. I use a hand-collected confidential dataset on 102 multinational firms on the types and locations of intangible assets owned by the MNEs to examine the external and internal factors that affect the allocation of ownership rights within the firm. The findings indicate that MNEs select locations based on tax and their need for coordination and regional expertise. I find evidence that MNEs are significantly likely to locate ownership of their intangible assets in regional hubs of expertise. When intangible assets are more difficult to monitor and control, firms are less likely to separate ownership from the value-creating activities. As such, these findings imply that tax competition is not simply a "race to the bottom" in that there are factors that inhibit firms from fully being able to capitalize on tax policies.

Internal Allocation of Rights to Competitive Advantages: Evidence from Multinational Firm Data

INTRODUCTION

An extensive body of research has studied the sources (e.g., Barney 1991; Dyer and Singh 1998; Nayyar 1990) and performance benefits (e.g., Henderson and Cockburn 1994; McGrath et al. 1996) of competitive advantages. Competitive advantages often stem from proprietary intangible assets such as technologies, brands, manufacturing processes, expertise, and know-how. Strategic positioning (Porter 1980), inter-firm relationships (Dyer and Singh 1998), information asymmetries (Nayyar 1990), and knowledge creation activities (Argote and Ingram 2000) can all help create competitive advantages that yield performance benefits in the form of profits and growth. While the importance of competitive advantages and the factors leading to their creation have been widely studied, relatively little research has been devoted to understanding how they are managed once created.

Indeed, many scholars implicitly assume that all entities within the firm have access to the firm's competitive advantage. Yet, firms may strategically limit the access of business units or subsidiaries within the firm to its key assets (e.g., Zhao 2006). Another common assumption is that top management at headquarters makes the strategic decisions regarding the firm's competitive advantages and any income they generate. However, a number of studies have noted the existence of profit centers where units have broad strategic discretion over assets and their associated income (e.g., Mookherjee 2006; Vroom 2006). Bounded rationality of top management inhibits its ability to make all strategic decisions (March and Simon 1958). As such, the delegation of rights to the firm's competitive advantages may be desirable.

Taking a property rights perspective, this paper examines the allocation of ownership rights to strategic assets *within the firm*. The firm is conceptualized as a bundle of resources (Barney 1991), of which, the unique, proprietary intangible assets are considered the most important (Barney 1991; Teece 1984; Teece et al. 1997). According to property rights theory, assets have bundles of rights associated with them, such as the right to use, exclude others from use, and gain income from the asset (Foss and Foss 2001). The multidimensionality of rights means that different entities can hold different rights to an asset. Applying this concept to inside the firm, one business unit or subsidiary might be given the right to manufacture a component, but not to sell it; another might be given the right to develop a new technology, but not the right to make strategic decisions on the complementary products of that technology. By studying the allocation of rights to key strategic assets, we can deepen our understanding of the management, coordination, and control of firm competitive advantages.[1]

Ownership rights are the rights to control and derive income from the asset (Grossman and Hart 1986). In general, entities that hold ownership rights to intangibles have strategic discretion over them; they can license and contract these assets to other entities within the firm, and are entitled to any income generated from them. While domestic and multinational firms alike may allocate ownership rights to their key strategic assets, the context of this research is multinational firms (MNEs). MNEs provide a unique opportunity to study the allocation of rights to firm intangible assets, since cross-border transactions lead MNEs to solidify the rights and responsibilities of their entities (i.e., subsidiaries, branches, and parent) in legal contracts. These

[1] Firms are composed of both tangible and intangible assets. The focus of this research is the allocation of rights to intangible assets (or "intangibles"), as they are of key strategic importance and (unlike tangible assets, which are location bound) intangibles can be leveraged across locations. As the management, development, and exploitation of intangibles might occur simultaneously in different locations, firms have considerable latitude in selecting how to delegate rights to intangibles.

contracts, signed by executives of the entities, contain detailed information on the entities' activities, responsibilities, risks undertaken, and rights to any existing or future intangibles.

The internal ownership of intangible assets is of both strategic and international importance. Through rights to income and control over an intangible asset, ownership rights place situated responsibility with an entity for developing, managing, and exploiting that asset. As a source of competitive advantage, intangibles often account for a large portion of total firm income. Thus, a tension emerges between allocating ownership for operational reasons versus tax avoidance. Firms may place ownership of intangibles in low tax jurisdictions to substantially reduce their tax bill (Griffith et al. 2014). The Organisation for Economic Co-operation and Development (OECD 2015) estimates that governments lose $100–240 billion in tax revenue each year due to MNEs shifting profits from high to low tax jurisdictions. Research and development (R&D) intangibles alone are estimated to account for half of all income shifted from high to low tax countries (Grubert 2003).

Despite its importance, relatively little is known about where firms locate ownership of their intangibles. Information on internal ownership of intangibles is not public. Accordingly, the purpose of this paper is to examine where firms locate ownership rights to their intangibles. If alternative means of coordination and control are used and the allocation of rights are simply for tax purposes, then tax should be the main driver of location choice, and we should not see any systematic evidence of operational factors affecting intangible asset ownership.

I use a unique, confidential dataset hand collected from transfer pricing reports and intra-company agreements from 102 MNEs over the 1997–2011 period. The data sources are audited by tax authorities and can be used in courts of law. The dataset provides a unique opportunity to study the location of intangibles owned by MNEs, as well as the tradeoffs that MNEs are willing

to make between operations and tax. I first confirm that MNEs are indeed likely to locate ownership of intangible assets in low tax jurisdictions. Then, consistent with property rights theory, which predicts that ownership should be granted to the unit best positioned to create value, I find evidence that MNEs are also significantly likely to locate ownership of intangible assets in regional hubs of expertise. I find evidence that MNEs with tacit intangible assets, which are by nature more difficult to transfer, monitor, and control from afar, are more likely to have ownership allocated to regions of expertise. In contrast, MNEs with codifiable intangible assets are more likely to have ownership separated from value-creating activities and located in tax havens. Moreover, this work provides insight into when firms are *not* willing to internally allocate ownership to intangibles. MNEs with interdependent intangible assets, which require more central coordination across the group, are less likely to have ownership allocated to both value-creating subsidiaries and non-value-creating tax subsidiaries.

This research makes several contributions to the literature. First, it contributes to the literature on competitive advantage (Barney 1991; Cockburn et al. 2000; Teece et al. 1997) by theorizing and analyzing the allocation of rights to intangible assets within the firm. Prior research has studied the antecedents of competitive advantages, theorized the importance of the management of competitive advantages, and studied the location of value-creating activities such as R&D, as well as the allocation of autonomy in general (i.e., not necessarily associated with control over key strategic resources). However, to my knowledge, this is the first study to examine where firms internally allocate ownership rights to their strategic assets. I find that the need for coordination and control shape the extent to which firms are likely to allocate ownership to value-creating units.

Second, this study contributes to property rights theory by examining the internal

allocation of ownership rights within the firm. Existing research focuses primarily on the allocation of ownership rights between two independent parties in the exchange. The MNE is conceptualized as a group of legally distinct subunits (wholly owned subsidiaries). These subunits hold ownership rights to MNE assets. Within the MNE, the economic owners of the MNE's intangibles are the residual claimants *within the MNE*. As discussed later in the paper, governments across the globe recognize and enforce that subsidiaries with economic ownership rights to intangibles are the internal residual claimants of the firm's intangibles (e.g., OECD Transfer Pricing Guidelines; IRS Treas. Reg. §1.482). By bringing property rights theory inside the firm, I am able to examine how both internal and external factors affect the allocation of ownership rights within firms.

Third, this study extends the literature on tax avoidance by shedding light on the managerial tradeoffs that firms make in undertaking tax strategies. Existing research on tax avoidance has focused mainly on tax reasons without examining managerial factors that shape location choice. With the exception of Bohm et al. (2012) and Griffith et al. (2014), prior research has largely ignored the role of the subsidiary. The results provide insight into when firms are not likely to locate ownership in low tax jurisdictions—namely, when intangibles require expertise that is difficult to transfer or manage from afar, firms are less likely to shift ownership to tax haven locations. Thus, tax competition is not simply a "race to the bottom."

Fourth, the dataset used for this analysis enables me to study the full allocation of ownership to all types of intangibles within the firm. Since information on internal intangible asset ownership is not public, existing research relies mostly on indirect measures of intangibles, such as royalty payments, balance sheet intangibles, and patent registrations. While these measures have illuminated some of the factors that affect profit shifting, each has its drawbacks.

For example, sources for royalty payments are incomplete and do not contain all parties that receive or pay royalties. Balance sheet intangibles typically represent "goodwill" of acquisitions and are not a good reflection of the actual intangibles owned and developed by firms. Finally, patents only account for one class of intangible assets and represent legal ownership, which are influenced by patent law and does not always overlap with economic ownership. The rich dataset used in this study has the advantage of being able to capture MNE location choice for all types of intangible assets.

The study proceeds as follows. The next two sections provide an overview of the context and theoretical background, respectively. I then outline my hypotheses and provide an overview of the methods used to test them, followed by the results. The final section of the paper discusses these results and offers conclusions.

CONTEXT

As outlined above, MNEs formally allocate ownership rights to their intangibles to subsidiaries and/or the parent (entities) within the firm. In most cases, the entities granted ownership rights to the firm's intangibles have control over the intangibles and are entitled to the income from them. They are able to select projects to invest in and are responsible for coordinating activities, as well as developing and maintaining the intangibles. In cases where ownership rights are allocated to a tax haven unit with minimal activities or employees, typically, the parent makes the strategic decisions regarding the intangibles and the tax haven unit receives the income from these assets. If a subsidiary is found to make strategic decisions on behalf of the tax haven regarding the intangibles, the subsidiary's local government can disregard the tax haven's ownership rights to the assets and determine that the local subsidiary is the owner of the intangibles since it is maintaining strategic control rights over them.

A number of scholars have argued that headquarters cannot formally delegate ownership rights inside the firm since headquarters can always intervene in decision making. Bolton and Dewatripont (2013) suggest that internal contracts are non-enforceable because entities within the firm are not able to sue their parent for breach of contract.[2] Baker et al. (2002) argue that since formal contracts are non-enforceable, relational contracts instead provide the means for internal control. These arguments beg the question as to why internal contracts exist. As governments have a vested interest in ensuring that they receive the tax income for activities conducted within their jurisdiction, the internal contracts are used by regulatory authorities and MNEs in courts, along with testimonies from employees on their duties, to determine the rights and responsibilities of the entities within the MNEs, and whether the MNEs acted in accordance with the contracts and adequately compensated subsidiaries for their responsibilities. Rauterberg (2017) notes that there is an entire area of corporate law around the legal rights, responsibilities, and contracting of subsidiaries in corporate groups.

In theory, the parent can always revoke a unit's ownership rights by overriding the decisions or by transferring ownership of the intangibles away from the unit. However, OECD guidelines and local country regulations require that if headquarters wants to transfer ownership, it must compensate the internal intangible asset owner for the net present value of the asset. Some countries, such as the United States, require that the internal price paid for the intangible asset be reviewed each year to ensure that it is commensurate with income from the asset. If the actual value deviates beyond a certain threshold from the expected value price paid, then an adjustment payment is required. While the internal payment for intangibles may not seem important on a consolidated MNE basis, it is highly important at a managerial level since it

[2] Financial investor and employment contracts are noted exceptions (Bolton and Dewatripont 2013).

determines the amount of financial resources that subsidiary managers have at their discretion (and clearly, it is also important for government bodies that want revenues recognized within their jurisdictions). Often, the price is too costly for a firm to internally transfer ownership of its intangible assets; the internal transfer is heavily scrutinized by tax authorities and therefore, ownership is rarely changed (e.g., once every decade or so, and typically coinciding with an organizational strategic change or restructuring).

Although the context of this paper is MNEs, domestic and multinational firms alike allocate ownership rights to their intangible assets. For instance, an engineering firm may allocate rights to a particular engineering process to a unit within the firm. Rauterberg (2017) provides numerous examples of formally allocating rights through contracting within domestic firms in non-legal agreements. In summary, while the allocation of rights to intangibles occurs in both domestic and multinational firms, the institutional features that cause MNEs to crystalize the ownership rights in legal contracts make MNEs an apt context for studying the internal allocation of rights to intangibles.

THEORETICAL BACKGROUND

Competitive advantages are at the core of business strategy (Porter 1985). A substantial amount of research has theorized and empirically studied how competitive advantages derived from technological factors and unique assets used in market positioning (e.g., Porter 1985; Henderson and Cockburn 1996), and from inimitable firm-specific capabilities and assets (Henderson and Cockburn 1994; Rumelt 1984; Wernerfelt 1984), can enable firms to earn above normal returns. In order to sustain a competitive advantage, the resources must be unique, difficult to imitate and transfer (Barney 1991; Dierickx and Cool 1989; Peteraf 1993). Numerous scholars distinguish between tangible and intangible assets owned by firms, and suggest that competitive advantages are most likely to stem from intangibles because they are more difficult to duplicate than tangible

assets (e.g., Barney 1991; Teece 1984; Teece et al. 1997). Frequently, intangibles are the result of tacit knowledge or know-how, which is difficult to transfer (Coff 1997), or are achieved through time-intensive development (e.g., reputation), which is difficult for other firms to acquire (Dierickx and Cool 1989). Thus, intangibles are viewed as key sources of competitive advantages (e.g., Teece et al. 1997).

The focus on heterogeneous resources in strategy research brought the manager's role to the forefront of generating and sustaining competitive advantages (Wernerfelt 1984). Managers hold a crucial role in identifying, acquiring or developing, and configuring firm-specific assets and capabilities. Teece et al. (1997) argue that identifying new opportunities and coordinating the firm's pool of heterogeneous resources to effectively and efficiently embrace new opportunities is fundamental to achieving competitive outcomes. Cockburn et al. (2000) note that competitive advantage is not only the ability of senior management to:

> "make the right decisions, but also about their ability to work creatively with the raw material presented by their firm and their environment; to respond appropriately when their firm's organizational structure finds 'good' strategies, and to create decision structures and procedures that allow a firm to respond to its environment adaptively" (Cockburn et al. 2000: 1128).

Although the role of managers has been highlighted, there is a gap in the existing research as to who within the firm is actually managing the firm's strategic resources. "Manager" is a general term and is often explicitly (e.g., Cockburn, et al. 2000) or implicitly assumed to be the top management of firms. Little is known about which managers within the firm are managing the intangible assets and the factors that affect the allocation of control over these

assets within the firm. In this way, this paper contributes to research on competitive advantage by studying the allocation of ownership rights to intangibles within the firm.

Delegation of Rights to Intangible Assets

While firm strategy is a fundamental aspect of top management's role, it can be advantageous for management to delegate rights to its key strategic assets, for several reasons: (1) top management are limited in their information processing capabilities (March and Simon 1958); (2) it takes considerable time and effort to coordinate the complementary activities around the firm's intangibles and manage the assets themselves; (3) these assets are often complex, knowledge-based, tacit resources that require specialized expertise to understand and manage (Coff 1997; Kogut and Zander 1993; Martin and Salomon 2003); and (4) that expertise might be more difficult and costly to observe from higher in the hierarchy (Jensen and Meckling 1992).

Firms must balance incentives, coordination, and control in allocating ownership rights to units within the firm. On the one hand, allocating ownership rights to a unit provides that unit with incentives for value creation and situated responsibility for managing the intangible asset. The entity receives income associated with the asset and is able to make strategic decisions regarding the asset without having to petition for top management's approval. This autonomy can enable the unit to be responsive to the local environment, allowing quicker information processing and decision making (Radner 1993). Delegating rights to intangibles within the firm can enable better management of the assets, as the unit may be closer to the market or resource needs for the creation and maintenance of the intangible. Delegation of ownership rights can be desirable as it reduces the coordination burden of top management so that it can focus its attention and resources on a subgroup of strategic assets. For top management, the delegation of ownership rights comes with the loss of control and potential for disjointed strategies and

duplicated efforts (Monteiro et al. 2008). Thus, firms may trade off having top management hold centralized control over the intangibles (in order to facilitate leveraging the assets across the organization) against delegated ownership rights where certain units are granted situated responsibility to manage the assets.

Property Rights Theory and the Allocation of Rights

Property rights theory focuses on the assets and their characteristics in determining the allocation of rights (e.g., Grossman and Hart 1986; Hart and Moore 1990). Asher et al. define property rights as "any sanctioned behavioral relations among decision makers in the use of potentially valuable resources; such sanctioned behaviors allow people the right to use resources within the class of non-prohibited uses" (2005: pp. 7). Each asset has a bundle of rights associated with it, including rights to use the asset, to exclude others from using it, and to invest in and sell the asset (Foss and Foss 2001).

Fundamental to property rights theory is the idea that rights can be assigned so that different entities can hold different rights to the same asset. For instance, property rights theory distinguishes between more strategic rights versus more routine rights. The rights can be categorized into specific rights (i.e., rights associated with performing specific activities associated with the asset) and ownership rights (i.e., residual rights of control over the asset, its uses, future direction, and rights to income from the asset) (Hart 1989). The notion that one party takes a strategic role by making strategic decisions and bearing any consequences of those decisions (income or loss) is fundamental to the concept of ownership. Grossman and Hart (1986) provide an example of how the entity that owns an asset affects the future strategic direction of the asset. For a coal boiler with problems processing impure coal, if the coal plant owner owns the coal mine, it will make the coal mine obtain better coal. In contrast, if the coal

mine owns the coal plant, it will make the plant technologically improve the boiler to handle the impure coal. In this way, ownership can influence which solutions to problems are selected, and shape the strategic direction of the assets.

Viewing the firm as a heterogeneous bundle of assets and complementary activities, the entities that hold ownership rights to the firm's intangibles have a key strategic role within the firm. As outlined, these entities make strategic decisions on the acquisition, development, maintenance, and exploitation of the intangible assets. They coordinate with the other entities (specific rights holders) within the firm to perform the complementary activities associated with the intangibles.

In this study, I examine both internal and external factors that influence MNEs' decisions about where to locate their intangibles. I argue that the ability of firms to game the system by placing ownership of their intangibles in tax havens will be constrained by their need for coordination and control in managing the assets. More specifically, the characteristics of the intangibles (which will determine whether there is a need for local expertise and/or centralized coordination) will affect where firms locate ownership of their intangibles.

HYPOTHESES

Tax and Intangible Asset Ownership

Often, intangibles account for the largest portion of an MNE's income; this creates a strong incentive for MNEs to locate ownership of intangibles in low tax jurisdictions to save on their tax bills. Prior research provides evidence that MNEs locate intangible assets in low tax jurisdictions. Mutti and Grubert (2009) find that royalty payments between parents and subsidiaries are negatively associated with statutory tax rate. In the European Union, subsidiaries with low corporate tax rates relative to other MNE entities are more likely to have intangibles on

their balance sheets (Dischinger and Riedel 2011). Corporate income tax rates have also been shown to be negatively associated with affiliate patent holdings (e.g., Alstadsæter et al. 2015; Bohm et al. 2012; Griffith et al. 2014; Karkinsky and Riedel 2012). Moreover, firms are more likely to shift ownership when intangibles are valuable than when they are not. In a study on patent and inventor locations, Bohm et al. (2012) find that patents with greater earnings potential are more likely to be located away from the inventor location and in foreign low tax jurisdictions. Overall, the studies suggest that intangible assets are likely to be located in low tax jurisdictions.

Hypothesis 1: The location of MNE intangible asset ownership is negatively associated with the local country effective tax rate.

Regional Expertise

Property rights theory suggests that ownership of an asset should be granted to the unit best positioned to create value in that asset (Grossman and Hart 1986; Hart and Moore 1990). By being able to control an intangible asset and its growth, and to realize any income generated from the asset, the owner has a clear incentive to maximize the asset's value (Grossman and Hart 1986; Hart and Moore 1990). In contrast, not having control rights means that the entity no longer has strategic discretion over the intangibles and must petition for approval, whether it be from the parent or another entity within the firm. A lack of control over the intangible assets that a unit creates can be de-motivating for managers of that unit, while placing ownership with the unit that has the expertise maximizes its incentive to create value (Hart and Moore 1990; Aghion and Tirole 1994). In particular, if the entity has human capital that is critical for value creation, it should be granted ownership (Hart and Moore 1990; Aghion and Tirole 1994). Leiponen (2008) finds support for these arguments in a study of third-party relationships: service suppliers that

have stronger capabilities to innovate and are indispensable for the service project are positively associated with the ability to retain control rights. Similarly, in a study of Internet portal alliances, Elfenbein and Lerner (2003) find that the entity that is most important for the success of the alliance is typically granted ownership of the critical elements of the alliance.

Research on the allocation of decision rights also suggests that these rights are delegated to the entities that are most capable and best informed to make the decisions (e.g., Acemoglu et al. 2007; Jensen and Meckling 1992). For maximum organizational efficiency and performance, it is essential that those with the responsibility for decisions also have the knowledge required to make the decisions (Jensen and Meckling 1992). Thus, intangible asset ownership is likely to be located in regions of expertise.

Hypothesis 2: The location of MNE intangible asset ownership is positively associated with regional expertise in the local country.

Independent versus Interdependent Intangible Assets

Drawing further on property rights theory, we can expect that the characteristics of the assets will affect which entity has ownership rights to them. Certain types of intangible assets require greater coordination than others. In particular, intangibles vary in the extent to which they are interdependent versus independent. Interdependent assets are synergistic. Activities associated with interdependent assets influence the value of both assets (Hart and Moore 1990). For example, a smartphone may contain proprietary software and hardware technology and brand intangibles. If the technology is enhanced, the brand value might increase as the brand's reputation for quality is increased. Hence, it can be difficult to separate out the value created by each of these intangibles. Interdependent assets require greater coordination of decisions and control over activities and investments than independent assets. For instance, if a new camera

technology is fitted into the smartphone, the software technology will also need to be changed to integrate the new features. Prior research has shown that as the need for coordination increases, decision rights are more likely to be centralized (e.g., Alonso et al. 2008). Rivkin and Siggelkow (2003) argue that when there is high interdependence between units within the firm, centralized control and coordination is appropriate. In the context of managing intangibles, having multiple units control interdependent intangibles can lead to internal conflict and coordination difficulties.

Conversely, independent assets are non-synergistic, and can easily be separated. Independent intangibles reduce the need for coordination across the group and make it easier to delegate control rights to the assets. Having the units with the most expertise manage the intangibles provides incentives for them to do so effectively. Accordingly, we can expect that the firm will be more likely to have ownership rights allocated to units with expertise if its intangibles are independent.

> *Hypothesis 3: The positive association between regional expertise and location of intangible asset ownership will be positively moderated by the independence of the MNE's intangible assets. The more independent the MNE's intangibles, the more likely ownership will be located in regions with greater expertise.*

Tacit versus Codifiable Intangible Assets

Intangible assets vary in the extent to which they are tacit versus codifiable. Codifiable intangibles are easy to describe, measure, monitor, and control; they include things like trademarks and recipes. Knowledge associated with codifiable intangibles can be transferred from one unit to another relatively easily. As such, the knowledge required to manage the

intangible assets can be directed both vertically and horizontally across the group to give the relevant decision maker adequate information to make the decision.

In contrast, at the other end of the continuum, tacitness is the extent to which a knowledge-based asset is difficult to describe, measure, monitor, or control. Tacit intangibles are often linked to human capital (Coff 1997) and include things like know-how and drug discovery. Tacit knowledge has been shown to be much more difficult to transfer both within and across firms (Grant 1996; Kogut and Zander 1993; Teece 1977; Martin and Salomon 2003). Teece (1976) demonstrates that tacit know-how is not easily tradeable. Simonin (1999) finds that tacit knowledge reduces the perception of how easy it is to internally transfer know-how. The "stickiness" of tacit knowledge makes it costly and challenging to transfer the required knowledge to top management so that it can make strategic decisions about the asset—particularly from afar. Thus, I predict the following:

> *Hypothesis 4: The positive association between regional expertise and location of intangible asset ownership will be positively moderated by the tacitness of the MNE's intangible assets; the more tacit the MNE's intangibles, the more likely ownership will be located in regions with high expertise.*

METHODS

A unique, confidential dataset on 102 MNEs from 1997-2011 and their location of intangible asset ownership was hand collected from transfer pricing reports from a consulting firm. OECD guidelines and local country regulations require that MNEs document their intercompany transactions in transfer pricing reports. The reports contain detailed information on which entities within the firm hold economic ownership rights to MNE intangible assets, the types of intangibles owned, and the contractual relationships between MNE entities, including

the activities performed and risks borne by the affiliates. The internal contracts between MNE entities are included as appendices of the reports. The consultants conducted interviews with senior managers and C-level executives to verify whether the activities were in accordance with the intra-firm agreements. Any discrepancies are documented in the reports. The reports were audited by tax authorities, with some countries directly holding firm executives accountable, in addition to the firm, by bringing criminal charges against the executives if the reports were found to contain incorrect information. This rich dataset enables the study of structures that would otherwise remain elusive.

The 102 MNEs represent all of the firms that the consulting firm had complete information on at the time of data collection. Although the sample is a convenient sample based on the MNEs that used a consulting firm to assist with their transfer pricing documentation, a vast majority of MNEs rely on consulting firms to assist with their transfer pricing. The sample includes MNEs headquartered in the United States, Europe, Asia, and other countries, with over two-thirds of the MNEs headquartered in the United States. MNEs in the sample range in size from having one subsidiary to well over 2,000 subsidiaries. The MNEs operate in industries ranging from mining, agriculture, and manufacturing, to retail, banking, and services.

As MNEs may choose to locate intangible asset ownership in any country, whether or not the firm has an existing location there (i.e., it can set up a new subsidiary with the purpose of allocating ownership to the unit), the sample is composed of the choice set of 98 countries with data available for estimation. The dataset is unbalanced, with firms entering and exiting the dataset based on the available years. The final sample was composed of 31,747 MNE-country-year observations over the 1997–2011 period.

Variables

Intangible Asset Ownership. The dependent variable for the analysis is a binary indicator equal to one if the MNE locates economic ownership of its intangible assets in the country location and zero otherwise. Aligned with strategy conceptualizations, an intangible asset is defined by the OECD as:

> not a physical asset or a financial asset, which is capable of being owned or controlled for use in commercial activities, and whose use or transfer would be compensated had it occurred in a transaction between independent parties in comparable circumstances (OECD 2013: 14).

Moreover, unique and valuable intangibles are defined as follows:

> those intangibles (i) that are not comparable to intangibles used by or available to parties to potentially comparable transactions, and (ii) whose use in business operations (e.g., manufacturing, provision of services, marketing, sales or administration) is expected to yield greater future economic benefits than would be expected in the absence of the intangible (OECD 2013).

Under transfer pricing guidelines, intangible asset ownership is based on economic ownership. The owners have residual control rights to the intangible assets and bear the risk of developing, maintaining, and exploiting the assets. The transfer pricing reports clearly identify the entities within the firm that own the intangibles. For example, a report states "[Entity] owns, manages, and maintains all intangible assets associated with [X] technology. These assets include, but are not limited to, trademarks, process and information technology, know-how, patents, industrial models, and all other intellectual capital." The transfer pricing reports use intra-firm contracts, payment and transaction flows, and interviews with management as

documentation of which entities hold ownership rights. All reports for each MNE were carefully reviewed, and each intangible asset owner and its country of incorporation was recorded.

Many countries provide industry-specific tax incentives. Therefore, I use a country-industry-year effective tax rate, which was collected from the Global Vantage database. *Effective Tax Rate* is calculated as the mean effective tax rate of all companies in the two-digit Standard Industrial Classification (SIC) code for businesses located in that country in the focal year. I employ the OECD's measure of revealed technological advantage for *Regional Expertise*, calculated as the country's share of patents in the focal firm's industry divided by the country's share of patents in all industries in that year (OECD 2009), to capture regional expertise in that country, industry, and year. Larger values represent greater country expertise in a particular industry.

For the intangible asset characteristics, I conducted content analysis of the detailed description of the intangibles contained in the transfer pricing reports. I constructed scales to measure the extent to which MNE assets are tacit versus codifiable (*Tacit Scale*) and independent versus complementary (*Independent Scale*), based on words describing the constructs from prior research.[3] To determine the words used in the lists, existing research on each of the dimensions was reviewed for words and phrases consistent with the theoretical constructs. The intangible asset descriptions were then reviewed to see if the words were used within the description. The top 10 words or phrases used in the reports for each dimension were selected to construct the scales. Once the word counts were finalized, I constructed scales from the word counts (Jap et al.

[3] For tacit, the following words were used: expertise, experience, know-how, knowledge, trade secret, explore, innovat, technology, solutions, and complex. For codifiable, the following words were used: trademark, trade name, logo, blend, formula, recipe, compound, manual, patent, schematic. For complementary, the following words were used: collaborat, combin, integrat, common, cross-functional, bundle, companion, complement, unified, suite. For independent, the following words were used: standalone, separate, used only, used primarily in, distinct, specialized, custom, differentiated, diversified, -specific, business segment.

2011).

Tacit Scale (Independent Scale) was constructed as the number of tacit (independent) words minus the number of codifiable (complementary) words, divided by the natural log of the total number of words searched. A high value means that the intangible assets are highly tacit (independent), whereas a low value means that they are highly codifiable (complementary). For robustness tests, I dropped words at random from the dimensions and added random words to the lists one at a time. The results to the analyses were robust to these tests.

The estimation controls for factors that might also affect the location of ownership rights to intangible assets. Tax haven countries typically have a set of policies around financial flows, minimum reporting standards, and privacy of information, as well as low tax rates, to attract MNEs. *Tax Haven Country* is a binary indicator set equal to one if the country is a tax haven, as defined by Dharmapala and Hines (2009). Bloom et al. (2002) demonstrate that R&D tax subsidies are positively associated with the location of MNE innovation activities. Using data from the OECD, I control for *R&D Tax Subsidies* measured as one minus the B-index (the before-tax income required to break even on US$1 of R&D expense for each country and year) (Warda 2013). Higher values of R&D tax subsidies indicate more generous benefits to performing innovation activities in the location.

I control for country-industry market competition using *Market Concentration Index*, which is calculated by summing the portion of total industry revenues for the four largest firms in the industry and country. Lower values of the market concentration index indicate that the market is more competitive, whereas higher values indicate that it is less competitive. I expect that MNEs will be less likely to locate ownership of their intangibles in locations where intellectual property rights are not protected. Data on intellectual property rights (*IPR Index*) was taken from the World

Economic Forum Global Competitiveness Report. The index ranges from one to seven, with seven indicating strong protection. Cultural distance can attenuate top management's ability manage local operations. Country-level data on cultural indices came from Hofstede et al. (2010). Consistent with Kogut and Singh (1988), *Cultural Distance* was measured using the composite index of the cultural indices. Larger values of cultural distance reflect greater differences between the home and host country culture. I control for year using year fixed effects. All independent variables are lagged by one year.

Estimation

To test the predictions, I apply a random coefficients logit model. The random coefficients logit model takes into account both observed and unobserved heterogeneity in MNEs' location choice (Berry et al. 2004; Nevo 2001; Train 2003). The model accounts for firm heterogeneity in responsiveness to tax policy and regional expertise by allowing tax and regional expertise parameters in the model to be randomly distributed across firms. The random coefficients vary at the level of the MNE, which allows for MNEs deciding on more than one intangible asset owner location, and for correlation in latent payoffs across all intangible asset owner location decisions made by one MNE.[4]

RESULTS

Descriptive Statistics

Relatively few entities within the firm are given ownership rights to firm intangible assets. Approximately 7.6% of all MNE entities (parent and subsidiaries) are intangible asset owners. Of those that are owners, 10.6% are the parent, 84.4% are subsidiaries that perform core

[4] The results are robust to a simple logit analysis. Ideally, an exogenous shock would be used to test the factors that affect the location of intangible assets. Unfortunately, as previously mentioned, internal ownership rights are very stable. There are only 24 changes of ownership in my sample, which is not sufficient for conducting such an analysis.

value-creating activities, and 5.0% do not perform the activities that generate intangibles. These numbers suggest that, contrary to the assumptions that top management controls the strategic assets of the firm or that intangible asset ownership is most likely placed in tax havens, a large portion of the internal units with intangible asset ownership rights are operational units, performing real activities. Table 1 shows the countries where at least one MNE in the sample located intangible assets.

Insert Table 1 here

In the dataset, developed countries have the most observations of intangible asset ownership. Although these countries are high tax jurisdictions, they tend to be areas with high property rights and regional expertise, and areas that are culturally similar to the parent. Contrary to expectations, there are countries with relatively high tax rates and low property rights protection (such as Vietnam and Greece) with intangible asset ownership. A closer look at these observations indicates that the intangible assets are closely tied to the local regional expertise. Table 2 contains the breakdown of intangible asset owner tax rates and regional expertise relative to the MNE parent and MNE group, respectively.

Insert Table 2 here

As shown in the table, over half of the intangible asset owners have lower tax rates than the parent, and two-thirds have lower tax rates than the MNE group. Approximately one-third have higher tax rates than the MNE group. Similarly, 43% are located in regions of greater expertise than the parent, and two-thirds are located in regions with greater expertise than the

MNE group. Overall, the raw data suggests that both tax rates and regional expertise are important factors in intangible asset ownership location.

Table 3 contains the descriptive statistics for the sample. The mean value of ownership is 0.03, reflecting that very few locations are granted control rights to the firm's strategic assets. The mean effective tax rate for the sample is 22%, and tax haven countries represent 14% of the sample. The correlations indicate that regional expertise, R&D tax subsidy, and cultural distance have the highest correlations with ownership (r=.18, r=.18, and r=-.17, respectively). The variance inflation factors for the variables range in value from 1.05 to 2.46, indicating that multicollinearity is not a concern for the analysis (Chatterjee and Price 1991).

Insert Table 3 here

Table 4 contains the results to the random coefficients logit model. To analyze location choice, I interact all MNE variables are with location-specific variables. Column 1 contains the base model, while Columns 2–4 add the interactions of regional expertise with the effective tax rate, tacit scale, and independent scale, respectively.

Insert Table 4 here

Hypothesis 1 predicts that the ownership location of intangible assets is negatively associated with the local country effective tax rate. I find support for this hypothesis. The first row in Table 4 shows that the mean marginal impact of tax rate on placing intangible asset ownership in a location is negative and statistically significant. All else equal, firms choose to locate ownership in low tax jurisdictions. The second row indicates that there is a significant amount of unobserved heterogeneity in the importance of tax rate on location choice across

MNEs in the sample. The standard deviations of the random coefficient are large and statistically significant across all specifications.

Hypothesis 2, which predicts that the ownership location of intangible assets is positively associated with regional expertise, was also supported. The third row of Table 4 shows that the mean marginal impact of regional expertise on placing intangible asset ownership in a location is positive and statistically significant, lending support to the argument that firms are likely to place ownership in locations with regional expertise. In addition, the fourth row indicates that there is a substantial degree of unobserved heterogeneity in the importance of regional expertise to location choice across MNEs. Considering the role of tax rate and regional expertise in choosing a location for ownership of intangibles, I examine the interaction results in Column 2. Surprisingly, the interaction between tax rate and regional expertise is insignificant.

The results provide support for Hypothesis 3 as well: tacit scale is positive and significantly moderates the relationship between regional expertise and location choice. MNEs with tacit intangibles are more likely to locate ownership of these assets in regions of expertise than those with codifiable intangibles.

Finally, I find marginal support for Hypothesis 4, which predicts that independent intangibles positively moderate the relationship between regional expertise and location choice. The coefficient for the interaction of independent assets with regional expertise is only marginally significant at $p<.10$.

Turning briefly to the control variables, tax haven country is insignificant, whereas R&D tax subsidies is positive and significantly associated with intangible asset location choice. The coefficient for market concentration is negative and significant, indicating that MNEs are more likely to have their intangibles owned in locations with greater industry-specific market

competition. As expected, MNEs are significantly more likely to locate intangible asset ownership in regions with strong intellectual property rights, as indicated by the positive and significant coefficient on the IPR index. Finally, cultural distance is negative and significant, suggesting that MNEs are more likely to allocate intangible asset ownership to units in locations that are more similar to the MNE home country.

Insert Table 5 here

Separation of Ownership from Value-Creating Activities

A key issue for tax avoidance is the separation of value-creating activities from ownership rights to the intangible assets. For exploratory purposes, I estimate (1) the probability that the firm will choose to locate ownership with value-creating activities (Columns 1–4, Table 5), and (2) the probability that the firm will choose to locate ownership without value-creating activities (Columns 5–8, Table 5). For the purposes of this analysis, a subsidiary performs value-creating activities if it actively performs R&D, manufacturing, marketing, and/or distribution associated with the intangible assets that it owns. If the entity is not actively performing any operational activities associated with the intangibles that it owns, I code it as a non-value-creating intangible asset owner.

The results in Table 5 indicate that the local country tax rate is negative and significantly associated with location choices that are co-located with value creating activities, whereas the local country tax rate is insignificant for location choices where ownership is not located with value-creating activities. Instead, tax haven country status is a positive and significant determinant of location choice for separating ownership from value-creating activities. This result suggests that the package of policies that tax haven countries offer might be more

attractive for separating ownership from value creation (such as privacy of information) than simply having a low tax rate. As one might expect, regional expertise is positive and significantly associated with co-locating ownership with value-creating activities, but is not significant for separating ownership from value creation. Once again, the interactions between regional expertise and the effective tax rate are non-significant.

The interaction between regional expertise and tacit scale is positive and significant for co-locating ownership with value creation (Column 3) and negative and significant for locating ownership in a non-value-creating location (Column 7). The positive and significant coefficient in Column 3 indicates that MNEs with tacit intangibles are more likely to co-locate ownership with value-creating activities in regional hubs of expertise. In contrast, the negative and significant coefficient in Column 7 indicates that MNEs with codifiable intangibles are more likely to separate ownership from value-creating activities and place ownership in regions with less expertise.

Finally, the interaction for regional expertise and independent scale is positive and marginally significant for co-locating ownership with value-creating activities, and positive and significant for separating ownership from value-creating activities ($p<.10$ and $p<.05$, respectively). These results suggest that the more independent MNE intangible assets are, the more likely the firm will allocate ownership to units within the firm (whether value-creating or non-value-creating units). The results also imply that MNEs with fewer independent intangible assets (i.e., more interdependent intangible assets) are less likely to allocate ownership rights to units across the firm.

I conducted several robustness tests. First, the analysis was estimated using a logit estimator with MNE and year fixed effects and the standard errors clustered by MNE and

country. Second, since several of the control variables are highly correlated, I dropped these controls from the model one at a time. Third, I incorporated additional controls such as gross domestic product per capita and a binary indicator for whether the country instituted a patent box regime. The results are robust to the alternative specifications.

DISCUSSION

Summary and Conclusions

This study draws on property rights theory to gain new insights into the allocation of rights to competitive advantages *within the firm*. In conceptualizing the firm as a bundle of heterogeneous resources, property rights theory complements the resource- and knowledge-based perspectives by enabling us to ask how the various rights to resources are allocated to parties within the firm. Although property rights theory is typically applied to external exchange relationships, extending it to intra-firm relationships can enhance our understanding of the strategic roles that units within the firm hold in managing competitive advantages. One implication of this research is that firms *in similar industries* and *with similar bundles of resources* might allocate rights differently inside the firm. As the internal units with control rights are able to influence the strategic direction of the assets, different rights allocations are likely to lead to long-term heterogeneity in firm strategy and performance.

At the core of strategy research is the management of competitive advantage. Firms must continually invest in creating and sustaining profitable intangible assets. While it is commonly assumed that top management maintains control over the firm's intangibles, the delegation of control rights to the strategic assets within the firm can alleviate the burdens of top management and place situated responsibility with the units best positioned to manage the intangibles. The paper demonstrates that firms indeed allocate ownership rights to their key strategic assets within the firm. Moreover, I find evidence that units located in regional hubs of expertise (i.e., where

they are well positioned to manage the intangible asset) are more likely to have ownership rights to the intangible assets.

In selecting the location, firms weigh tax strategy with the need for incentives, coordination, and control. The entities with ownership rights to intangibles receive benefits (income) from those assets, but must also bear responsibility for their performance. Thus, ownership rights should be granted to the unit that has the largest marginal contribution to the asset—but there is a tension between allocating ownership rights to the unit with the lowest tax rate versus the unit with the requisite expertise.

This research extends the literature on multinational firm tax avoidance by introducing managerial trade-offs firms make in undertaking tax strategies. Existing research has largely focused on tax-related factors in firms' location choices without examining managerial factors as well. This research addresses that gap by introducing managerial tradeoffs that firms make in undertaking tax strategies. Interestingly, the vast majority of intangible asset owners perform value-creating activities. The simple descriptive statistics suggest that tax is not the sole reason for firms allocating internal ownership. In fact, 24% of the subsidiaries with ownership rights had tax rates higher than their parent, and 36% had tax rates higher than the average tax rate within the MNE group. In contrast, approximately 44% of the subsidiaries with ownership rights were located in regions with greater industry-specific expertise than their parent, and 65% were in regions with greater industry-specific expertise than the average of the MNE group. The descriptive statistics, taken together with the regression results, highlight operational factors as key considerations in the location of ownership rights to intangibles.

These findings have important implications for policy makers as well, as they provide insight into the types of tax policies that can attract MNE location choice. In 2012, due to

growing international pressure for policy changes, the G20 called for increased global coordination. The resulting OECD Base Erosion and Profit Shifting (BEPS) Project has been mandated to "realign taxation with economic substance and value creation." The results suggest that the characteristics of the intangibles owned by the MNE will affect the MNE's ability to transfer intangible asset ownership to tax havens. Consistent with the literature on tax avoidance, I find evidence that firms are willing to engage in tax avoidance, especially when the intangible assets are more easily transferred across the firm and require less coordination. When intangible assets are more difficult to monitor and control, they are less likely to have ownership separated from the value-generating activities.

Finally, this work identifies those intangible assets that firms are unlikely to grant ownership rights to, even if the unit in question is a value-creating entity. While independent intangibles are associated with both value-creating and tax haven entities, intangibles that are complementary are less likely to be allocated to units. As such, tax competition is not simply a "race to the bottom," in that there are factors that inhibit firms from fully capitalizing on tax policies. From a policy perspective, this research provides insight into the types of policies that can attract MNE location choice. The results suggest that for policy makers, creating an attractive hub of expertise might be a powerful tool for attracting MNE intangibles.

I expect that the operational factors will be generalizable to domestic firms; that is, expertise, tacitness, and independence of the intangible asset should all be important determinants in the allocation of control rights within domestic firms as well as MNEs. I explicitly take tax into account in examining the allocation of control rights within the firm, particularly since intangible asset ownership has been identified as a key strategy in MNE tax

avoidance. While domestic firms might have tax issues across state or regional jurisdictions, tax is less likely to play a less dominant role in their intangible rights allocations.

There are many fruitful areas of further research on these topics. First, this paper only focuses on the allocation of ownership rights to intangible assets. Studying the factors that determine the allocation of specific rights to the intangibles, such as the right to sell products that incorporate the intangible, would enhance our understanding of the management of complementary assets associated with the intangibles. Second, as noted, a crucial implication of this research is that very similar firms might allocate rights differently, which can lead to heterogeneous firm outcomes. Comparing firms with similar initial conditions that undertake different strategies in allocating rights to their intangibles would elucidate the evolution of firm competitive advantages. Third, property rights theory suggests that asset ownership affects incentives for value creation. Studying the performance implications of the allocation of rights to firm intangible assets would be another compelling avenue for future research.

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Table 1: Intangible Asset Locations[5]

Country	Tax Haven	Country	Tax Haven	Country	Tax Haven	Country	Tax Haven
Argentina		Czech Republic		Japan		South Africa	
Australia		Denmark		Luxembourg	X	Spain	
Austria		Finland		Mexico		Sweden	
Barbados	X	France		Netherlands		Switzerland	X
Belgium		Germany		New Zealand		Taiwan	
Bermuda	X	Greece		Norway		Ukraine	
Brazil		Hong Kong	X	Philippines		United Kingdom	
Canada		Hungary		Poland		United States of America	
Cayman Islands	X	India		Portugal		Puerto Rico	
Chile		Ireland	X	Romania		Venezuela	
China		Israel		Russian Federation		Vietnam	
Colombia		Italy		Singapore	X		

Table 2: Ownership and Relative Tax Rate and Regional Expertise

	Tax Rate Relative to Parent	Tax Rate Relative to MNE Group	Regional Expertise Relative to Parent	Regional Expertise Relative to MNE Group
Higher	23.9%	36.0%	43.9%	64.8%
Equal	19.5%	0.5%	17.2%	0.5%
Lower	56.6%	63.5%	38.9%	34.7%

[5] Tax haven classification is based on Dharmapala and Hines (2009).

Table 3: Descriptive Statistics and Correlations

	Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11
1	Intangible Asset Owner	0.03	0.17											
2	Owner - Value Creating Activities	0.03	0.16	0.96										
3	Owner - Non-Value Creating Activities	0.00	0.05	0.29	0.06									
4	Effective Tax Rate	0.22	0.12	0.01	0.02	-0.01								
5	Regional Expertise	0.36	0.58	0.18	0.18	0.03	0.09							
6	Tacit Scale	1.01	3.63	-0.02	-0.02	0.00	-0.03	-0.03						
7	Independent Scale	-0.63	1.10	0.06	0.05	0.02	0.02	0.02	-0.22					
8	Tax Haven Country	0.14	0.35	-0.01	-0.02	0.06	-0.09	-0.13	0.00	0.00				
9	R&D Tax Subsidy Rate	0.39	0.46	0.18	0.17	0.04	0.15	0.47	-0.01	0.01	-0.14			
10	Market Concentration	0.89	0.14	-0.06	-0.07	-0.01	-0.02	-0.09	-0.01	-0.01	-0.02	0.03		
11	IPR Index	4.45	1.24	0.16	0.15	0.06	-0.03	0.46	-0.01	0.01	0.31	0.58	-0.15	
12	Cultural Distance	2.20	1.31	-0.17	-0.16	-0.07	0.02	-0.25	0.01	0.01	-0.20	-0.41	0.02	-0.48

Number of Observations = 27,223. Correlations greater than 0.01 or less than -0.01 are significant at $p<.05$.

Table 4: Random Coefficient Results Predicting Intangible Asset Ownership

	1	2	3	4
Effective Tax Rate (Mean)	-3.306***	-3.088**	-3.314***	-3.292***
	(0.84)	(1.03)	(0.89)	(0.88)
Effective Tax Rate (Std. Dev.)	6.812*	6.723*	8.671**	8.362**
	(2.69)	(2.67)	(3.29)	(3.17)
Regional Expertise (Mean)	1.590***	1.642***	1.495***	1.694***
	(0.24)	(0.28)	(0.24)	(0.26)
Regional Expertise (Std. Dev.)	3.043***	3.033***	2.878***	3.269***
	(0.77)	(0.76)	(0.76)	(0.82)
Regional Expertise*Tax Rate		-0.242		
		(0.65)		
Regional Expertise*Tacit Scale			0.084*	
			(0.04)	
Regional Expertise*Independent Scale				0.205+
				(0.11)
Tax Haven Country	-0.093	-0.090	-0.061	-0.069
	(0.13)	(0.13)	(0.14)	(0.14)
R&D Tax Subsidy Rate	1.382***	1.381***	1.404***	1.417***
	(0.15)	(0.15)	(0.16)	(0.16)
Market Concentration	-2.182***	-2.180***	-2.403***	-2.410***
	(0.26)	(0.26)	(0.28)	(0.28)
IPR Index	0.223***	0.221***	0.231***	0.233***
	(0.06)	(0.06)	(0.07)	(0.07)
Cultural Distance	-0.753***	-0.754***	-0.761***	-0.759***
	(0.05)	(0.05)	(0.05)	(0.05)
Constant	-2.408**	-2.441**	-2.509**	-2.524**
	(0.75)	(0.75)	(0.84)	(0.84)
Number of Observations	31,747	31,747	27,223	27,223
Log-Likelihood	-2,619	-2,619	-2,283	-2,283
Wald Chi-Squared	969***	969***	837***	837***
AIC	5,317	5,319	4,639	4,639

+ p<.10, * p<.05, **p<.01, *** p<.001

Table 5: Random Coefficient Results for Ownership With and Without Value-Creating Activities

	DV: Binary Indicator for Intangible Asset Owner that Performs Key Value-Creating Activities				DV: Binary Indicator for Intangible Asset Owner that Does Not Perform Key Value-Creating Activities			
	1	2	3	4	5	6	7	8
Effective Tax Rate (Mean)	-2.91***	-2.62*	-2.87***	-2.92***	-2.33	0.29	-2.98	-3.24
	(0.82)	(1.05)	(0.87)	(0.86)	(2.63)	(3.45)	(3.07)	(2.98)
Effective Tax Rate (Std. Dev.)	12.34*	12.04*	14.34*	14.21*	3.20	3.88	5.80	5.31
	(5.73)	(5.74)	(6.33)	(6.29)	(2.79)	(3.20)	(4.41)	(4.22)
Regional Expertise (Mean)	1.86***	1.92***	1.72***	1.93***	-0.13	0.84	1.00	1.26
	(0.26)	(0.30)	(0.26)	(0.27)	(1.02)	(1.42)	(1.13)	(1.14)
Regional Expertise (Std. Dev.)	2.99***	2.97***	2.73***	3.23***	1.68*	1.76*	1.87+	1.803+
	(0.80)	(0.80)	(0.78)	(0.85)	(0.77)	(0.81)	(0.96)	(0.92)
Regional Expertise*Tax Rate		-0.30				-5.42		
		(0.67)				(4.56)		
Regional Expertise*Tacit Scale			0.09*				-0.39*	
			(0.03)				(0.19)	
Regional Expertise*Independent Scale				0.19+				1.12*
				(0.10)				(0.51)
Tax Haven Country	-0.48**	-0.48**	-0.38*	-0.39*	2.32***	2.37***	2.63***	2.66***
	(0.15)	(0.15)	(0.16)	(0.16)	(0.43)	(0.44)	(0.58)	(0.58)
R&D Tax Subsidy Rate	1.48***	1.48***	1.52***	1.53***	1.34**	1.36**	1.32*	1.33*
	(0.17)	(0.17)	(0.18)	(0.18)	(0.51)	(0.51)	(0.56)	(0.56)
Market Concentration	-2.64***	-2.64***	-2.85***	-2.86***	1.06	0.97	0.99	0.86
	(0.27)	(0.27)	(0.29)	(0.29)	(1.34)	(1.35)	(1.64)	(1.62)
IPR Index	0.14*	0.14*	0.17*	0.17*	1.59***	1.56***	1.04*	0.98*
	(0.07)	(0.07)	(0.07)	(0.07)	(0.43)	(0.43)	(0.47)	(0.47)
Cultural Distance	-0.73***	-0.73***	-0.73***	-0.73***	-2.27***	-2.26***	-3.44***	-3.48***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.44)	(0.44)	(0.73)	(0.74)
Constant	-1.35	-1.40+	-1.14	-1.12	-10.19**	-10.48**	-9.39*	-8.96*
	-0.84	-0.85	-0.9	-0.89	-3.62	-3.65	-3.76	-3.8
Number of Observations	24,548	24,548	21,659	21,659	7,583	7,583	6,387	6,387
Log-Likelihood	-2,301	-2,301	-2,027	-2,028	-234	-234	-190	-189
Wald Chi-Squared	869***	869***	766***	763***	78***	77***	45**	44**
AIC	4,680	4,682	4,127	4,127	543	544	442	440

+ p<.10, * p<.05, **p<.01, *** p<.001