The Multinational Advantage

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Abstract:

We evaluate how maintaining operations in multiple countries affects firm value for U.S. domiciled multinational firms (MNCs). An innovation of our study is the use of foreign firms as benchmarks to estimate the implied value of the foreign operations of an MNC, allowing us to control for differences in discounts rates and growth expectations across countries. In contrast to prior literature, we find that multinational operations are valued at a premium, on average. This result is consistent with the observation that firm managers continue to establish and expand foreign operations. When we examine potential sources of this value premium, we find that the ability to exploit international differences in tax codes and factor prices, and the ability to lower profit volatility, enhance the value of an MNC.

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1. Introduction

We evaluate how maintaining multinational operations affects firm value, on average, and examine whether specific factors that are likely to provide a competitive advantage to multinational corporations (MNCs) drive a valuation premium. We first evaluate whether multinational operations affect value by comparing the actual firm value to an implied firm value and examine whether any excess value is associated with multinational operations. After finding evidence of a premium associated with multinational operations, we examine potential sources of this premium – taxes, profit diversification, host-country corruption, operational flexibility, and cost of capital. We find that the ability to exploit international differences in tax codes and factor prices, and the ability to lower profit volatility, enhance the value of an MNC.

Economic efficiency requires the optimal allocation of scarce resources. As a result, a central question is whether managers make optimal decisions when they allocate such scarce resources within their business. When a firm operates in multiple countries or industries the allocation problem can become severe because of increased agency costs, greater complexity, greater uncertainty, and a lack of credible signals that allow external parties to assess which individual segments of the firm are performing well. A large literature examines whether there exists a net discount or premium to the market value of the firm, on average, for firms that operate in multiple industries. This literature finds that these firms trade at a discount and typically interprets this finding as evidence that the costs of operating in multiple industries outweigh the benefits (i.e., value is destroyed).

Potentially in response to this unfavorable cost-benefit trade-off, firms started becoming more focused and the extent of operations outside firms' primary industry declined over a period

of years. Over the past decade, the proportion of non-core operations has stabilized at its new lower level. In contrast, firms continue to increase the amount of operations outside their country of domicile in ever growing amounts. Despite these facts, there are comparatively few studies that evaluate whether multinational operations are value-enhancing for the average firm.

We examine whether multinational activity affects firm value by estimating the excess value of the firm using a method similar to that of Berger and Ofek (1995). Berger and Ofek study a manager's ability to allocate resources across industry segments by considering whether the firm as a whole is worth more or less than the sum of its parts. In particular, excess firm value is estimated by comparing actual firm value to an implied firm value that equals the sum of implied values across all segments of the firm. While Berger and Ofek (1995) divide the firm into industry segments, we divide the firm into country-industry segments. This additional dimension arises in response to our focus on multinational operations. The implied value of each individual segment is determined using the median single-segment firm operating (only) in the same country-industry. Prior literature interprets a discount from the implied value as an indication that managers are not maximizing value (i.e., stakeholders would benefit if management broke up the firm). Alternatively, a premium is consistent with managers maximizing shareholder value.[1]

Our estimation technique is made possible by using data maintained by the Bureau of Economic Analysis (BEA). These data provide detailed information about the country and industry in which U.S.-based MNCs operate. While Compustat data provide some information about the countries and industries in which firms operate, these data are not as detailed and heavily rely on managerial disclosure choices. As our sample of MNCs is limited to firms

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[1] Obviously, this method does not evaluate all possible alternative investment choices. Therefore, finding a premium is not a sufficient condition for concluding value maximizing behavior.

domiciled in the U.S., we herein refer to the U.S. as 'domestic' and any other country as 'foreign'. Furthermore, we refer to a 'single-segment' firm as a firm that operates in only a single country-industry.

Our finding that MNCs trade at a premium stands in contrast to the discount documented in Denis, Denis, and Yost (2002). Denis et al. (2002) use single-segment domestic firms as benchmarks for MNCs foreign operations (i.e., domestic benchmarks). In contrast, we use single-segment foreign firms (i.e., foreign benchmarks) for foreign segments and single-segment domestic firms for U.S. segments. To the extent that growth rates and discount rates vary by country, we expect our method to be more appropriate for isolating the value effects of multinational operations. To ensure that the differences in results are due to the differences in the choice of benchmark, we repeat the analysis of Denis et al. (2002) for our sample and find similar results to the ones they report. This analysis confirms that differences in value effects from multinational activities are driven by our different method for estimating implied value.

The finding of a premium makes a significant contribution to the relatively sparse literature on the value effects of multinational activity. By using foreign benchmarks rather than domestic benchmarks for the foreign operations of MNCs our measure of implied value expands upon the methods used by Berger and Ofek (1995) and Denis et al. (2002). More specifically, our approach allows us to answer a different research question than that of Denis et al. (2002). Holding constant the extent of multi-industry activity, we ask whether MNCs are more valuable than a portfolio of domestic *and foreign* benchmark firms of a similar footprint. In contrast, Denis et al. (2002) ask whether MNCs are more valuable than a domestic benchmark firm. As discussed in Section 2.1, we believe that asking whether an MNC's foreign (domestic)

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operations are more valuable than those of a foreign (domestic) firm is a more appropriate way to assess the value implications of operating in multiple countries.

Given this new measure of implied value and our access to detailed BEA data, we also contribute to the literature by providing evidence on which factors influence the competitive advantage of multinational firms. First, MNCs may increase firm value by capitalizing on institutional restrictions such as tax codes (e.g., Errunza and Senbet 1981, 1984). Second, MNCs may reduce volatility in profits by operating in multiple countries, potentially providing increased debt capacity, reduced tax payments, and enhanced repayment ability (e.g., Lewellen 1971, Majd and Mayers 1987). Third, MNCs can export home-country governance to corrupt countries, potentially improving their ability to take part in commercial arrangements. However, home-country regulations also constrain MNCs, so the overall value effect of a multinational network in a corrupt country is unclear. Fourth, operating in multiple countries can create value for an MNC through operational flexibility, such as where to incur costs and sell product. Fifth, an MNC may benefit from its internal capital market, particularly in areas with shallow capital markets and high costs of capital. However, investors and lenders are likely to expect higher rates of return from the additional risk associated with operating in these environments, making it unclear whether a multinational network will enhance value in countries with a high cost of capital.

We regress excess firm value on proxies for each of these five potential sources of value, as well as the degree of multinational operations. We find that the ability to exploit international differences in tax codes and factor prices, and that the ability to lower profit volatility, enhance the value of MNCs. We find neither a premium nor discount associated with having a multinational network in corrupt business environments or countries with a high cost of capital.

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The paper proceeds as follows: Section 2 provides motivation, Section 3 describes the research design, Section 4 discusses our results, Section 5 covers additional specifications, and Section 6 concludes.

2.   **Motivation**

2.1   Discussion of implied firm value

Figure 1 shows the average percent of foreign sales through time and illustrates that firms are continuing to increase their global reach.[2] We would like to learn whether the decision to maintain foreign operations results in a premium or discount to firm value, on average. To this aim, we evaluate whether the firm as a whole is worth more or less than its implied value (i.e., the sum of its individual segments) – noting that many of the segments operate in different countries. As discussed in greater detail in Section 3.2, a key innovation of our study is to estimate the implied value of the different country operations of an MNC using foreign benchmark firms (i.e., firms domiciled and primarily operating in the same industry and country as an MNC's foreign segment). This approach allows us to vary the cost of capital and expected growth rates across not just industry but also country by measuring the implied value of the foreign segment of a firm as if the foreign segment operated autonomously (i.e., at its approximate spinoff value).

An alternative strategy would be to define the implied value of the different country operations of an MNC using domestic benchmark firms (i.e., firms domiciled in the U.S. and primarily operating in the same industry as the MNCs foreign segment (e.g., Denis et al. 2002)). This approach to defining implied value addresses a different question. Namely, would the

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[2] The discontinuity in industrial diversification (the percent of sales outside the primary industry) between 1997 and 1998 is the result of a change in segment reporting rules under U.S. GAAP.

value of an MNC differ if the foreign operations were relocated to the U.S.? This thought experiment assumes that there exists adequate capacity within the U.S. to repatriate the foreign operations (without affecting profitability or market share). By virtue of using domestic benchmarks for MNCs' foreign operations, it also assumes that the risks and expected growth rates of foreign operations are equivalent to the risks and expected growth rates of domestic operations. While this question is interesting, we believe it is more important to understand whether foreign operations, on average, enjoy competitive advantages over their foreign counterparts.

2.2   Premium versus discount

In a frictionless world where managers are maximizing firm value and markets are efficient, there should be no discount or premium to operating in foreign markets. In practice, imperfections in the financial and real sectors, as well as differences in institutional regimes, create frictions that managers of MNCs are likely able to exploit, suggesting a premium to multinational operations. However, the advantages of being an MNC may be eroded by increased agency costs, much like the value of operating in more than one industry.

The prior literature provides little guidance as to whether the benefits outweigh the costs of multinational operations. Instead, this literature tends to focus on whether foreign operations and domestic operations have equivalent values. For example, Denis et al. (2002) use estimates of implied firm value based on benchmark domestic firms operating in the same industries as the MNC and provide univariate tests that indicate a discount of approximately 3.5% for MNCs. This discount is substantially larger in their regression results and is on par with the discount to industry diversification. Alternatively, several studies examine whether Tobin's Q (or some

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variation on the ratio of total firm value to assets) is associated with foreign operations. The findings from these studies are mixed. For example, using a variety of econometric, sample, and variable specifications Click and Harrison (2000) find a consistently negative relation between Tobin's Q and the extent of foreign activity. Using a different sample, Morck and Yeung (1991) find a positive relation. While the prior literature does not yield a clear prediction, the sheer fact that managers of U.S. firms continue to expand their foreign presence (see Figure 1) and that this expansion is not hidden from shareholders leads us to expect a premium (on average). However, we do acknowledge that, even with transparent expansion of foreign activities, governance or entrenchment problems may still occur and offset any potential premium.

2.3   When do multinational operations enhance value?

Regardless of the average value effect, we test five hypotheses about how operating in multiple countries affects firm value relative to benchmark firms – taxes, profit diversification, corruption, operating flexibility, and cost of capital.

Taxes

MNCs may create value because of their ability to exploit institutional restrictions such as tax codes and financial restrictions (e.g., Errunza and Senbet 1981, 1984). In particular, a large literature examines how differences in tax codes create opportunities for international profit shifting (see Hines 1999, Newlon 2000 for a review). An MNC can shift profits from high-tax countries to low-tax countries through a variety of techniques including the adjusting of transfer prices used for cross-border intra-firm transactions, international capital structure decisions, and the assignment of expenses such as R&D or headquarter services. International profit shifting

efforts, if effective, should reduce firm profits reported in high-tax countries and lower the firm's worldwide tax burden.

Diversification of profit

All else equal, diversification is expected to reduce the volatility in a firm's cash flow when a firm is comprised of operations with less than perfectly correlated cash flows (e.g., Lewellen 1971). Reducing the volatility of cash flows has several benefits, including raising a firm's debt capacity, lowering a firm's tax payments, and enhancing a firm's ability to settle various research and development, lease, and dividend payout commitments (e.g., Lewellen 1971, Majd and Mayers 1987, Berger and Ofek 1995, Comment and Jarrell 1995). A key reason firms cite for maintaining a diversified portfolio of business activities is that diversification mitigates the effect of any one industry or country on their operations.[3] While this theory is not unique to a multinational firm, maintaining operations in multiple countries reduces the firm's exposure to the economy of any single country. Accordingly, we expect that operating in multiple countries will enhance an MNC's value if doing so reduces the volatility of the firm's cash flows.

Corruption

Broadly speaking, corruption is the abuse of public office for personal gain, for example by extortion, soliciting or offering bribes. MNC operations in corrupt countries may be more or less valuable than the operations of a foreign (single-segment) benchmark firm. An MNC's ability to export governance to its foreign operation may offer greater transparency for investors and/or

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[3] For instance, United Technologies Corporation, a global provider of products and services to the building systems and aerospace industries through its Otis, Carrier, UTC Fire and Security, Pratt and Whitney, Hamilton Sundstrand and Sikorsky segments, states in its 2009 annual report that "[t]o limit the impact of any one industry or the economy of any single country on our consolidated operating results, our strategy has been, and continues to be, the maintenance of a balanced and diversified portfolio of businesses."

greater trustworthiness in commercial arrangements, thus creating an advantage. However, being part of an MNC may also constrain the range (or reduce the effectiveness) of activities performed in the host country, thus creating a disadvantage. For instance, the foreign operations of an MNC are frequently constrained by regulations in its country of domicile. Both arguments are particularly relevant when an MNC is domiciled in a less corrupt country and limit the ability of an MNC to compete with the foreign benchmark firm.

U.S. MNCs are particularly sensitive to host-country corruption (e.g., Hines (1995)). This is often attributed to the 1977 Foreign Corrupt Practice Act, which forbids bribery by U.S. firms and suggests that the risk of being caught and punished for bribery imposes costs on U.S. domiciled MNCs. Habib and Zurawicki (2002) find that foreign investments of MNCs domiciled in corrupt countries are less sensitive to host-country corruption. Overall, whether a multinational network can derive a competitive advantage in corrupt environments is ambiguous.

Operational flexibility

MNCs can create value through the operational flexibility associated with opportunities to exploit market conditions (Kogut 1983). Theories of MNCs view these benefits as the result of either horizontal expansion (in which firms save on trade costs by setting up foreign operations whose full range of activities mirror the activities they perform at home) or vertical expansion (in which firms fragment different stages of the value chain across different countries whereby each country operation performs a narrow range of activities). In practice, these two strategies are not mutually exclusive and MNCs choose a strategy between the two extremes (Hanson, Mataloni, and Slaughter, 2005).

While horizontal expansion primarily offers an MNC access to new customers, vertical expansion primarily enables an MNC to take advantage of international differences in factor prices. The cost structure flexibility associated with vertical expansion should reduce the average marginal cost of worldwide production relative to purely domestic production resulting in higher profit margins or market share. Accordingly, we expect that operating in multiple countries will enhance an MNC's value because it enables the firm to better exploit international differences in factor prices.

Cost of capital

When countries have shallow capital markets, a multinational network may provide the benefit of a lower cost of capital for investments and expansion. For instance, operations with few investment opportunities can finance investments in cash poor operations with positive net present value projects (e.g., Myers and Majluf 1984). As a result, diversified firms will be relatively less liquidity constrained and able to shift resources to the most valuable investment opportunities. While this cross-subsidization benefit is available to a domestic firm operating in multiple industries, the benefit is compounded for a multinational operating in a number of different countries and industries. Desai, Foley, and Hines (2004) find that internal financing is used more often when MNCs operate in countries with more costly external financing.

Diversified firms may also be relatively more protected when negative shocks hit external capital markets. Matvos and Seru (2011) find that industrially diversified firms perform better than non-diversified firms when external capital markets are impaired, while Desai, Foley, and Forbes (2008) find that subsidiaries of MNCs are able to expand economic activity during a currency crisis when local firms are constrained.

While the arguments above suggest that MNCs enjoy certain advantages when the foreign cost of capital is high, these benefits should be reduced by the additional risk associated with operating business in high cost of capital environments. In other words, MNC investors are likely to expect higher rates of return as compensation for higher risk. Given the countervailing effects, it is unclear to what extent the multinational network will enhance value when the cost of capital is high.

3.   Research Design

3.1   Data

As described conceptually in Section 2.1 (and in detail below), the dependent variable in our study is excess firm value, which equals the log of the ratio of actual firm value to implied firm value. We observe actual firm value. We compute implied firm value using market value to sales ratios, herein referred to as 'multiples', for single-segment firms.[4] These single country-industry firms serve as benchmarks for an MNC's operations within that same country-industry. The sum of the resulting measures represents the theoretical value of a firm as a portfolio of unrelated businesses – a portfolio that matches the MNC's country-industry footprint. The objective of our analysis is twofold. First, we examine the relation between excess firm value and multinational operations. Second, we examine whether empirical support exists for hypotheses of how multinational operations enhance firm value. To examine these issues, we estimate regressions of excess firm value on a proxy for the extent of multinational operations, proxies that capture features of multinational operations that we expect to affect value, and control variables.

Four primary data sources play a distinct role in carrying out our analysis: i) Bureau of Economic Analysis (BEA) data, ii) Compustat Segment data, iii) Worldscope data, and iv)

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[4] A 'single-segment' firm is a firm operating in a single country-industry.

Compustat Fundamentals Annual data. Broadly speaking, BEA data provide information about the diversified nature of MNCs, Compustat Segment data provide information about the diversified nature of domestic firms, Worldscope data allow us to compute multiples for single-segment foreign firms that serve as benchmarks for the foreign operations of MNCs (i.e., foreign benchmarks), and Compustat Fundamentals Annual data allow us to compute multiples for single-segment domestic firms that serve as benchmarks for the domestic operations of multinational firms. We also use the latter data source to construct our control variables.

Key to the execution of our study is our access to BEA data. Federal law obligates U.S.-domiciled MNCs to report certain financial and operating data to the BEA.[5] With regard to observing the country-industry operations of MCNs, use of the BEA data overcomes two important limitations of Compustat Segment data. First, Compustat does not consistently identify the specific location or scale of MNC's foreign operations. Second, Compustat does not consistently identify the industry activities in each country of operation. This latter point is particularly limiting for MNCs because domestic industry activity need not mirror foreign industrial activity (i.e., an MNC generating an equal proportion of sales in two industries in the domestic market need not generate industry sales in equal proportions in every foreign operation).[6] The lack of detail and consistency in Compustat Segment data arises from the fact that firms exercise substantial discretion in segment reporting under Accounting Standards Codification 280 (Villalonga, 2004; Bens, Berger, and Monahan, 2011).

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[5] BEA surveys are conducted pursuant to the International Investment and Trade in Services Survey Act (P.L. 94-472, 90 Stat. 2059, 22 U.S.C. 3101-3108). See http://www.bea.gov/surveys/diadurv.htm and Mataloni (2003) for more detailed information on the BEA data.

[6] In fact, the expectation that a multinational firm would exhibit different industry membership in different countries is consistent the theory of vertical foreign direct investment where firms separate their various value chain activities and locate them in the most favorable country (Hanson, Mataloni, and Slaughter, 2005).

The BEA defines an MNC as the combination of a single U.S. entity, called the U.S. parent, and at least one foreign affiliate – that is, these firms have a physical presence outside the U.S. Since 1982, MNCs have completed a mandatory and confidential 'Survey of U.S. Direct Investment Abroad' for the domestic operation and the operations of each foreign affiliate, defined as a foreign entity in which the U.S. parent holds at least a 10 percent equity interest (directly or indirectly). The data are reported on a fiscal year basis, are in accordance with U.S. Generally Accepted Accounting Principles (GAAP), and are translated into U.S. dollars. Regarding the information reported, the level of detail varies by year and depends on whether the affiliate meets a reporting threshold.[7] Importantly, the BEA data allow us to observe total sales, industry membership, and location for each separate entity that comprises an MNC.

Before describing our variable construction procedures in more detail, we briefly outline our sample selection process.[8] Using firm-years appearing in Compustat Fundamentals Annual and Compustat Segment data, we obtain a sample of firms domiciled in the U.S. with total sales exceeding $20 million. We exclude firms in the financial service (SIC codes between 6000 and 6999) and utility (SIC codes between 4000 and 4999) industries and eliminate firm-years when the sum of segment sales (either geographic or business) is not within 1% of total firm sales for that year. We consider implementation of ASC 280, *Segment Reporting*, and restrict our sample period to include fiscal years beginning after December 15, 1997 through 2008. ASC 280 substantially altered the definition of a reporting segment under U.S. GAAP. This restriction

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[7] In order to reduce the reporting burden, the BEA requires that affiliate assets, sales, or net income (loss) exceed $7 million in 1999, $30 million in 2000 through 2003, $10 million in 2004, and $40 million in 2005 through 2008. The years 1999 and 2004 are referred to as 'benchmark' years; all other years are referred to as 'non-benchmark' years. In benchmark years, we observe the necessary data for our study (i.e., total sales) without regard to a reporting threshold because the U.S. parent reports total sales for affiliates that fall below the reporting threshold in an attachment to the U.S. parent's survey form. In non-benchmark years, we observe a BEA estimate of total sales for affiliates falling below the reporting threshold. This estimate is typically determined using a 'same-as-last-year' approach.

[8] The procedures we use to obtain our sample are similar to those used by Berger and Ofek (1995) and Denis et al. (2002).

ensures that Compustat Segment data reflects the use of a consistent accounting standard. Finally, we require that our MNCs appear in both Compustat and BEA data. The requirement that our sample firms appear in the BEA database ensures that the firms have observable international operations.   In sum, these procedures result in 1,166 multinational firms incorporated in the U.S. with 4,591 observations between 1998 and 2008 that meet all of our data requirements.

3.2   Dependent Variable

The dependent variable in our study is excess firm value (*Excess Value*), defined as the log of the ratio of actual firm value to implied firm value (Berger and Ofek, 1995). Appendix A provides the definition to this and all other variables used in our analysis. We observe actual firm value, equal to a firm's market value of equity plus book value of debt (i.e., book value of total assets minus book value of total equity), using Compustat Fundamentals Annual data. We compute implied firm value as the sum of the separate implied values of a firm's operations in each country-industry. Our computation of implied values for the separate operations of a firm can best be described in three steps. First, we obtain total sales generated by a firm for each country-industry in which it operates. Second, we obtain multiples (market value to sales ratios) for benchmark firms operating in those same country-industries. Third, we multiply a firm's country-industry sales by the applicable country-industry multiple to obtain the implied market value for each country-industry operation.[9] We perform each step by year.

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[9] Alternatively, one could use value to income and/or value to asset ratios. However, our research design requires the assumption that any measured used computing value ratios are consistently measured across the various accounting standards that firms use and across time. This assumption is substantially more likely to be true for sales than either income or assets. Furthermore, using value to sales ratios maintains consistency with the prior research on the value implications of MNC operations (e.g., Denis et al. [2002]).

The sum of these implied values is an estimate of the value of a portfolio of unrelated businesses that mirror the related businesses of the firm. Consequently, a comparison of actual firm value to implied firm value provides a measure of the extent to which the actual firm value is potentially influenced by the multinational structure of the firm (i.e., joining together the separate operations within a single firm). We provide descriptive statistics for *Excess Value* for our sample of 4,590 MNC firm-years in Table 1 Panel A as well as univariate comparisons of the values between the MNC firms and the domestic single-segment and foreign single-segment benchmark firms. The *Excess Value* measure is significantly higher (i.e., suggesting a premium in firm value) for multinational firms relative to the benchmark firms in total as well as the domestic and foreign subgroups (p-values for tests of means and medians are < 0.01). Similar to Berger and Ofek (1995), the median values differ slightly from zero due to the elimination of extreme excess values. These univariate results provide some initial support for our expectation that operating in multiple countries enhances firm value, on average.

Note that our computation of implied firm value requires two inputs. First, we need information on the country-industry composition of total sales for our sample of firms. Second, we need multiples for firms operating in the same countries and industries as our sample firms (i.e., benchmark firms). We obtain country-industry sales for our MNC firms from BEA data and for the benchmark firms from either Compustat or Worldscope data, depending on the country of domicile.

To estimate foreign country-industry multiples, we rely on WorldScope financial data on foreign firms. We restrict the WorldScope data that we use to include firms domiciled outside the U.S. with at least 90% of sales, income, and assets inside the country of domicile (i.e., those that do not report significant multinational activity) and that operate in a single industry. We refer to

these firms as foreign benchmark firms; these firms do not appear in any of our regressions. We report the number of foreign benchmark firms in Worldscope during our sample period in Table 1 Panel A. As seen in Table 2, Panel A, the number of firms is decreasing over time; however, we also observe this trend for both firms in BEA data and the firms in Compustat data (unreported). The industry criterion is based on the two-digit SIC grouping that includes at least five single-segment firms.[10] For every country that has at least five firms in the respective industry and the respective year, we use the median ratio of market value to sales[11]. This ratio is the country-industry multiple – the first input required to compute implied values.[12] In the first column of Table 2 Panel B, we report the median multiples for significant countries represented in our sample. Of note is the significant cross-country variation in multiples.

To estimate the benchmark multiples for the U.S.-industry segments, we rely on the Compustat Segment data. We use a similar procedure as that for the foreign segments and estimate the multiples using single-segment U.S. firms in the respective industry.

To determine the country-industry composition of MNCs we rely on BEA data.[13] In Table 2 Panel C we report the aggregate number of foreign affiliates and total sales by country for our sample of 4,951 MNCs. The specific countries tabulated are those that represent at least 0.2 percent of total firm sales. The top five countries in which MNCs generate sales are Canada, United Kingdom, Germany, France, and Japan. Table 2 Panel C also provides a comparison of the number of the foreign benchmark firms available in Worldscope in the specific countries in

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[10] BEA reporting constrains us to the two-digit SIC code level so we use this with all data in order to be consistent across firms and across time.

[11] When five firms are not available, we follow Berger and Ofek (1995) and use the median ratio across all firms in the same one-digit SIC grouping. This procedure results in 40.7% (59.3%) of MNC subsidiaries being matched at the two-digit (one-digit) level.

[12] We compute industry multiples for the U.S. using Compustat Fundamentals Annual data using the same industry criteria.

[13] We compute the proportion of industry sales for domestic firms using the number of business segments reported under ASC 280 in the Compustat Segment data.

which MNCs generate the majority of their sales. Country coverage in Worldscope is not available for countries representing 0.04 percent of total firm sales.

3.3   Independent variables of interest

Recall that the first objective of our study (discussed in Section 2.2) is to examine the overall relation between excess firm value and multinational operations. Our proxy for the extent of multinational operations is the percent of total firm sales made by foreign operations (*%Foreign Sales*). By this measure, the extent of multinational activity in our sample of MNCs is non-trivial – Table 1 Panel B shows that approximately 24 percent of sales are generated by foreign operations. Our first analysis estimates ordinary least square regressions of *Excess Value* on *%Foreign Sales* and control variables (discussed below). Consistent with the increasing globalization observed in practice, we anticipate that *Excess Value* will be increasing in *%Foreign Sales*.

The second objective of our study (discussed in Section 2.3) is to examine whether empirical support exists for theories of how multinational operations can potentially enhance firm value. To this aim, we incorporate five firm-level variables into the above regression – *Tax Benefit*, *Profit Diversification*, *Corruption*, *Price Level Index*, and *Cost of Capital*. We test for an effect on excess firm value for each variable individually, and then combine all five variables into a single regression. We define each variable in detail below and we report descriptive statistics Table 1 Panel B.

We compute our first variable, *Tax Benefit*, equal to a firm's expected tax rate minus its actual (effective) tax rate. We compute a firm's actual tax rate, using Compustat Fundamentals annual data, as total income tax expense (TXT) divided by pre-tax income (PI). We compute a firm's

expected tax rate in two steps. First, we obtain country-year statutory tax rates using a variety of data sources.[14] In the third column of Table 2 Panel B, we report the median value over our sample period for a selection of significant countries. The countries with the highest tax rates are Japan and Germany while the countries with the lowest tax rates are Hong Kong and Ireland (tax haven countries per Hines and Rice (1994)). Second, using each firm's country sales as a percent of total firm sales, we obtain a weighted average statutory tax rate across the countries in which each firm operates.[15] Descriptive statistics for this variable and all other independent variables are provided in Table 1 Panel B. Higher values of *Tax Benefit*, the excess of the expected tax rate over the actual tax rate, imply that a firm reduced its income tax burden relative to a portfolio of local firms operating in the same geographic footprint.[16] If the ability to exploit differences in tax codes across countries is value-enhancing, we expect *Excess Value* to be increasing in *Tax Benefit*.

Our second variable, *Profit Diversification*, is equal to the volatility of the domestic operation minus the volatility of the firm (i.e., the entire global set of operations). We define volatility as the standard deviation of return on sales (i.e., net income divided by sales) over the current and

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[14] We obtain statutory tax rates for each country-year from the Office of Tax Policy Research at the University of Michigan and global tax guides published by Ernst & Young, KPMG, and PriceWaterhouse Coopers.

[15] We also use an alternative measure of the expected tax rate that is based on actual effective tax rates of our benchmark firms (as reported in their financial statements) in each country. When compared to the measure based on statutory tax rates, this alternative measure proxies more directly for the effective tax rates of benchmark firms. However, measurement of this variable relies on reported income tax expense and the measurement of this item varies across accounting standards. Nevertheless, our results are unaffected by using this alternative measure.

[16] We are aware that U.S.-based multinational firms operate under a worldwide tax system with deferral and that these firms are generally required to accrue in their financial statements the expected residual tax due in the U.S. when foreign earnings are repatriated. To the extent that U.S. MNCs accrue the residual tax in their financial statements, this would be expected to reduce the value of *Tax Benefit* (because this accrual would increase their actual tax rate). In practice, many U.S. firms use the exception available under FASB ASC 740-30-25-17 – Indefinite Reversal Exception (formerly APB No. 23). See Zion, Varshney, and Cornett (2011) for a discussion of the lack of tax accrual in practice. Overall, any accrual of tax expense in the data should bias against us finding any value effect for *Tax Benefit*.

previous four years.[17] Higher values imply that operating in multiples countries reduced the volatility of an MNC's return on sales. To the extent that MNCs enjoy diversification benefits by mitigating the effect of a single country on their operations, we expect a positive coefficient on *Profit Diversification*.

We compute our third variable, *Corruption*, in two steps. First, we obtain the country-year corruption index published by Political Risk Services. This index ranges from 0 to 6 where higher values imply greater corruption.[18] In the second column of Table 2 Panel B, we report the median value over our sample period for a selection of significant countries. The most corrupt countries are China and Mexico while the least corrupt countries are Canada, Sweden, and the Netherlands. Second, using each firm's country sales as a percent of total firm sales, we obtain a weighted-average index across the countries in which each firm operates. If the greater transparency or trustworthiness that a multinational brings to bear on the local operation in a corrupt country are value-enhancing, then *Excess Value* will be increasing in *Corruption*. On the other hand, if being domiciled in the U.S. constrains the ability of an MNC's foreign operation to compete with firms domiciled in the corrupt country, then *Excess Value* will be decreasing in *Corruption*.

We compute our fourth measure, *Price Level Index*, in two steps. First, we obtain country-year price level indices (PLI) – purchasing power parities divided by nominal exchange rates – published by the International Monetary Fund. This is a broad measure of the relative cost of

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[17] To compute *Profit Diversification*, we obtain country net income from BEA data. This variable has the same availability as total sales (described in Section 3.1).

[18] We use the following procedure to fill in missing data for all country-year variables, including *Corruption*. When a country-year value is missing, we fill in the missing value with the value reported in the nearest year for that country. If the value is missing for a particular country over our entire sample period, we fill in the missing value with the median value of countries with non-missing values based on gross domestic product groupings – i.e., high income, upper middle income, lower middle income, and low income. We rely on the income groupings published by the World Bank. This procedure assumes that most country-level attributes vary with a country's level of development.

economies with the U.S., which is set equal to 1.0. In the fourth column of Table 2 Panel B, we report the median value over our sample period for a selection of countries. Based on this measure, the cheapest economies are China and Malaysia while the most expensive economies are Japan and Switzerland. Just over half (12 out of 21) of the countries listed in Table 2 Panel B have cheaper economies than the U.S. Second, using each firm's country sales as a percent of total firm sales, we obtain a weighted average PLI across the countries in which each firm operates. The cost structure flexibility associated with a multinational network provides the firm with an advantage relative to the benchmark firms, particularly when generating sales in expensive economies. In other words, an MNC will have an advantage over its benchmark firm along this dimension so long as the multinational network contains at least one foreign affiliate located in a lower cost economy than the economy in which the benchmark firm is domiciled.[19] The benchmark firm must incur costs in the same country in which it generates its sales, while the foreign operation of an MNC can benefit from the ability to exploit differences in factor prices across countries. If this operating flexibility enhances firm value, we expect *Excess Value* to be increasing in *Price Level Index*.

We compute our fifth and final variable, *Cost of Capital*, in two steps. First, we obtain the country-year credit rating published by Institutional Investor.[20] The rating ranges from 0 to 100 where higher values imply that a country has a higher default risk. Country-level credit risk is a reasonable predictor of expected equity market returns and volatility (Erb, Harvey, and Viskanta, 1996) and exhibits a highly significant correlation with international accounting-based estimates of implied cost of capital (Hail and Leuz, 2009). In the last column of Table 2 Panel B, we report

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[19] Note that our excess value measure cannot determine which country-industry operations are creating the excess value. In this instance, while multinational firms appear to operate in relatively cheaper economies when compared to domestic firms operating only in the U.S., it is entirely plausible that the cost structure flexibility, in particular, creates significant excess value in the operations located in expensive countries (including the domestic operation).
[20] We thank Cam Harvey for providing these data.

the median value over our sample period for a selection of countries. The countries with the highest credit risk are Brazil and Mexico while the countries with the lowest credit risk are Switzerland, Germany, and the Netherlands. Second, using each firm's country sales as a percent of total firm sales, we obtain a weighted average credit risk rating across the countries in which each firm operates. If an MNC's ability to cross-subsidize its operations in various countries, perhaps through the use of cross-listing, affiliated loans, or guarantees, provides it with an advantage relative to local firms, this advantage will be the greatest when firms operate in countries with a relatively higher cost of capital. However, such benefits will be reduced by the additional risks associated with operating in high cost of capital environments (i.e., investors and lenders will expect higher rates of return to compensate for such increased risk). Accordingly, we weakly expect that *Excess Value* will be increasing in *Cost of Capital*.

3.4   Control Variables

We include variables in our regression to control for other potential determinants of excess value. We include the percent of sales made by the firm outside its primary industry (*%Industry Other*) to control for any relation between industrial diversification and excess value (e.g., Berger and Ofek 1995). For this purpose, we obtain industry sales for domestic and multinational firms using Compustat Segment data. A firm's primary industry is the industry in which the firm generates the majority of its sales and we determine industry sales at the 2-digit SIC code. We set *%Industry Other* equal to zero for firms that operate in a single industry or business segment.

Consistent with Denis et al. (2002), we also include controls for firm size (*Log Firm Value*), the ratio of long term debt to total market value (*LTDebt / Firm Value*), the ratio of capital expenditures to total sales (*CAPX / Sales*), the ratio of earnings before interest and taxes to total

sales (*EBIT / Sales*), the ratio of research and development expenses to total sales (*R&D / Sales*), and the ratio of advertising expenses to total sales (*Advertising / Sales*). Table 1 Panel B provides the distribution of the control variables.

4.   Results

4.1   Primary specification

In this section, we examine the relation between firm excess value and the amount of foreign activity at U.S. MNCs. In Table 3, we find results consistent with our prediction that greater foreign activity is associated with a premium in firm value. The coefficient on the percent of foreign sales is significantly positive (0.156 with a p-value < 0.05). A one standard deviation (20%) increase, in the percent of foreign sales (*%Foreign Sales*) is associated with a 3.1% increase in firm excess value.

Using their alternative strategy that employs U.S. domiciled single-segment firms as the benchmark for the implied value of the foreign operations, Denis et al. (2002) find that greater foreign activity results in a *discount* to firm value. This suggests that an MNC would be better off if the foreign operations were relocated to the U.S., presupposing adequate capacity exists in the U.S. to repatriate all foreign operations. The discount to excess value arises directly from their choice to use U.S. domiciled single-segment firms to estimate the implied value of the firm. Using the Denis et al. (2002) method to calculate excess value in our sample, we obtain a significantly negative regression coefficient on *%Foreign Sales* (results untabulated).

Consistent with past studies that examine industrial diversification such as Berger and Ofek (1995), we find a significant discount to industrial diversification (*%Industry Other*). Other control variables are of signs and significance consistent with the findings of Denis et al. (2002),

with the exception that we find *Advertising / Sales* to be significantly positively associated with excess value in contrast to their positive but insignificant finding.

4.2 Cross-sectional attributes of the multinational activity

We employ five variables to examine when multinational activity is more likely to increase firm excess value. In Table 4 we present each of the five variables separately in columns 1-5 followed by all five together in column 6.

The first cross-sectional attribute we examine is taxes. Firms for which the effective tax rate differential is more favorable between the actual effective tax rate and the weighted average statutory tax rate that the firm faces (i.e., firms with greater tax benefits to being multinational) see greater excess firm values. *Tax Benefit* is significantly positively associated with excess firm value in both columns 1 and 6 (p-value < 0.01 in column 1 and < 0.05 in column 6). Similarly, we find results consistent with the predicted benefit of diversification – there is greater excess firm value at firms for which multinational activity reduces the volatility of operations. *Profit Diversification* is significantly positively associated with excess firm value both when included alone (column 2) and when included with all other cross-sectional attributes (column 6) (p-values < 0.01).

The third cross-sectional attribute we examine is corruption. Due to opposing forces that affect the relation between corruption and excess firm value, we were unable to sign a prediction. If U.S. MNCs are constrained and unable to compete effectively in corrupt foreign locations we expect a negative relation. If governance and reporting standards to which the U.S. firms adhere provides added benefits in more corrupt environments we expect a positive relation. As seen in Table 4 (columns 3 and 6), we find no relation between the weighted average level of corruption

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across the countries in which a firm operates (*Corruption*) and firm-level excess value. The lack of result suggests that neither of the two hypotheses provides a dominant explanation.

We include the *Price Level Index* to capture operating efficiency and find weak results that are consistent with our predictions of a positive relation with *Excess Value* in columns 4 and 6 (p-values < 0.10). This finding is weakly consistent with the assumption that multinational firms that sell in countries with higher price level indices should be better able to capitalize on the cost of inputs and sales price from outputs to maximize profits and firm value.

The final hypothesis we examine is whether multinational firms with internal capital markets are advantaged relative to local firms in countries with higher costs. We do not find results consistent with this conjecture – *Cost of Capital* is not significantly associated with *Excess Value* in either column 5 or 6. Though Desai, Foley, and Hines (2004) suggest that internal financing is used more often when MNC's operate in high cost of capital countries, the lack of result here is consistent with capital markets incorporating information about where a firm is operating and the risks inherent in that location.

In summary, we find support for the predictions that multinational activity that results in a lower effective tax rate than expected, that provides diversification benefits by reducing the volatility of operations, and that increases the operating efficiency by allowing the firm to exploit lower costs are all associated with increased excess value relative to a series of local firms covering the same geographic and industrial footprint. However, we find no support for the conjecture that corruption is associated with excess firm value, possibly due to offsetting predictions. Nor do we find support for the cost of funds playing a role in excess value.

5.   Additional specifications

In this section, we consider alternative specifications from the main model of Section 3 in order to investigate the robustness of our results and to relax some of the assumptions implicitly made there. We also address some of the concerns about endogeneity that are present in the literature. For example, in the industrial diversification literature, Campa and Kedia (2002) emphasize the potential endogeneity of a firm's decision to expand. Firms may choose to expand their operations either industrially or geographically as part of their corporate strategy. However, it is important to recognize that simply because a variable is a choice variable does not necessarily cause an endogeneity problem. To be endogenous, a variable such as the decision to diversify must be correlated with other variables that effect firm excess value and that are unobservable. For example, we do not observe a firm's management ability. This unobserved, firm specific factor may be correlated with the degree of international operations and may also affect a firm's excess value, leading to an endogeneity problem and biased and inconsistent standard least squares estimators.

Fortunately, the panel structure of our datasets allows us to address some of the concerns about endogeneity using panel data regression techniques (e.g. Wooldridge 2010). First, we estimate a regression of the change in excess value on changes in the percentage of foreign sales (i.e. a first difference estimator). With this estimator, the key assumption for identification is that the firm specific effects that are correlated with the decision to expand internationally are time-invariant. Differencing two neighboring time periods eliminates any time-invariant firm specific heterogeneity that could be correlated with global expansion. We believe that over short periods of time and for many firms in the population this is a reasonable approximation and it resolves several potential sources of endogeneity. This is because management ability and many other unobservable firm characteristics that determine whether a firm will operate internationally may

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change over long periods of time but are less likely to change from year to year. The results of our first difference panel data regression are in column one of Table 5. The coefficient on *%Foreign Sales* continues to be positive and significant with a value of 0.278, indicating a significant premium for international operations.

The results of the first differenced regressions remain sensible even if there are firm specific attributes that are time-varying as long as these are uncorrelated with the degree of global expansion. Nevertheless, we might be concerned that the sources of endogeneity are still present after having differenced the data. This would happen if there are firm specific attributes that are time-varying, unobservable, and are still correlated with expansion. For example, management ability may evolve over longer periods of time. Given that the length of our panel data set covers 1998 to 2008, it is possible that some unobserved firm-specific effects did change through time. Our next step in addressing the omitted variable problem is to proxy for these unobserved factors using other observed variables that are highly related. By increasing the information set in the corresponding regressions, our goal is to condition on enough additional variables that what is left unexplained is no longer correlated with the regressors. In the next specification we proxy for these omitted firm specific attributes using additional variables. Specifically, any remaining correlation due to managerial ability should be related to past profitability of the firm. By conditioning on the firm's previous performance over several years, we are able to proxy for managerial ability. We therefore run regressions in first differences with additional lags of *EBIT / Sales* as our proxy for managerial ability. The results of these regressions are in column two of Table 5. They are consistent with our main results that global expansion has a positive impact on a firm's value. The estimated value of 0.274 is statistically significant at the 1% level.[21]

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[21] The results of the regressions are consistent if we expand the number of lags to four.

6.   Conclusion

In light of the continued growth in operations outside a firm's country of domicile, we evaluate whether such multinational operations enhance firm value and explore specific mechanisms that could lead to increased value through multinational activities. The specific mechanisms for enhancing firm value at multinational firms that we explore are taxes, profit diversification, host-country corruption, operational flexibility, and cost of capital.

We first find strong evidence supporting a premium associated with greater levels of multinational operations. Our method for estimating whether or not a premium exists is based on that used by Berger and Ofek (1995) and compares the actual value of the firm to an implied value. Our method is in contrast to that used by Denis et al (2002) who estimate the excess value of multinational firms relative to U.S. single-segment firms with the same industry footprint. Our measure incorporates both the industry and country footprint of the firm's operations in the estimates of implied value to incorporate the varying growth rates and discount rates.

In light of the premium associated with multinational operations, we then examine the potential sources of this premium. We find that the ability to exploit international differences in tax codes and factor prices, and the ability to lower profit volatility, enhance the value of an MNC. We find no evidence of a premium or discount associated with operations in countries with on average greater levels of host-country corruption or higher cost of capital.

Our first finding makes a significant contribution on the value effects of multinational activity. By using foreign benchmarks rather than domestic benchmarks for the foreign operations of MNCs our measure allows us to ask a different research question than has been asked previously. Holding constant the extent of multi-industry activity, we ask whether MNCs are more valuable than a portfolio of firms that together have a similar country-industry

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footprint. A second contribution of our study is our ability to shed light on why multinational operations enhance firm value.

References

Berger, P. G. and E. Ofek, 1995. Diversification's effect on firm value, *Journal of Financial Economics* 37, 39-65.

Campa, J. M., and S. Kedia, 2002. Explaining the diversification discount, *The Journal of Finance* 57 (4), 1731-1762.

Click, R. W., and P. Harrison, 2000. Does multinationality matter? Evidence of value destruction in U.S. multinational corporations, Working paper.

Comment R., and G.A. Jarrell, 1995. Corporate focus and stock returns, *Journal of Financial Economics* 37 (1), 67-87.

Denis, D. J., Denis, D. K., and K. Yost, 2002. Global diversification, industrial diversification, and firm value, *The Journal of Finance* 57 (5), 1951-1979.

Desai, M. A., Foley, C. F., and J. R. Hines Jr., 2004. A multinational perspective on capital structure choice and internal capital markets, *The Journal of Finance* 59 (6), 2451-2487.

Erb, C., Harvey, C., Viskanta, T., 1996. Expected returns and volatility in 135 countries, *The Journal of Portfolio Management*, 46–58.

Errunza V., and L. Senbet, 1981. The effects of international operations on market value of the firm: theory and evidence, *Journal of Finance* 36, 401-417.

Errunza, V., and L. Senbet, 1984. International corporate diversification, market valuation and size adjusted evidence, *Journal of Finance* 34, 727-745.

Foley, C. F., Desai, M. A., and K. J. Forbes, 2008. Financial constraints and growth: Multinational and local firm responses to currency depreciations. *Review of Financial Studies* 21 (6), 2857-2888.

Habib, M. and L. Zurawicki, 2002. Corruption and foreign direct investment. *Journal of International Business Studies* 33, 291-307.

Hail, L., and C. Leuz, 2009. Cost of capital effects and changes in growth expectations around U.S. cross-listings, *Journal of Financial Economics* 93, 428-454.

Hanson, G., Mataloni, R., and M. Slaughter, 2005. Vertical production networks in multinational firms, *Review of Economics and Statistics* 87(4), 1-15.

Hines, James R., Jr., 1995. Forbidden payment: Foreign bribery and American business after 1977. NBER Working Paper no. 5266. Cambridge, Mass.: National Bureau of Economic Research, September.

Hines, J. R., 1999. Lessons from behavioral responses to international taxation, *National Tax Journal* 52, 305–322.

Hines, J., and E. Rice, 1994. Fiscal paradise: Foreign tax havens and American business. *The Quarterly Journal of Economics* 109 (1), 149-183.

Kogut, B., 1983, Foreign direct investment as a sequential process, Charles P. Kindelberger and David (Eds.), The Multinational Corporations in the 1980's, MIT Press, Cambridge, MA.

Lewellen, W. G., 1971. A pure financial rationale for the conglomerate merger, *Journal of Finance* 26 (2), 521-537.

Majd, S., and S. Myers, 1987. Valuing the government's tax claim on risky assets. Working Paper no. 1553. Cambridge, Mass.: National Bureau of Economic Research.

Mataloni, R. 2003. U.S. multinational companies: Operations in 2001. *Survey of Current Business*, 85-105.

Matvos, G., and A. Seru, 2011. The dynamic tradeoff between corporate socialism and financial market dislocation: Estimates from internal capital markets, Working paper.

Morck, R., and B. Yeung, 1991. Why investors value multinationality, *Journal of Business* 64, 165-186.

Myers, S. C., and N. S. Majluf, 1984. Corporate financing and investment decisions when firms have information that investors do not have, *Journal of Financial Economics* 13, 187-221.

Newlon, S. T., 2000. Transfer pricing and income shifting in integrating economies. In: Cnossen, S. (Ed.), Taxing Capital Income in the European Union: Issues and Options for Reform. Oxford University Press.

Wooldridge, J.M., 2010. Econometric Analysis of Cross Section and Panel Data (Second Edition). Cambridge, MA: MIT Press.

Zion, D. A. Varshney, and C. Cornett (2011). 'Parking earnings overseas'. Credit Suisse Equity Research (April 26, 2011).

Appendix A: Variable Definitions

We obtain information regarding firms' operations by country and industry from the Bureau of Economic Analysis (BEA), unless otherwise noted. Acronyms used below reflect Compustat mnemonics and thus indicate when we obtain data from the Compustat North America Fundamentals Annual database. All independent variables are winsorized at 1%.

Dependent variable:

Excess Value	=	The log of the ratio of actual firm value to implied firm value. Actual firm value is equal to market capitalization (MVE) + book value of total assets (AT) – book value of shareholders' equity (SEQ). Implied firm value is calculated as the sum of the implied values of a firm's operations in each country-industry. The implied value for each country-industry is equal to the sales made in that country-industry times a multiple that is equal to the ratio of a benchmark firm's actual value to total sales. A benchmark firm is defined as a median single-segment firm operating in the same country-industry. All country-industry multiples require at least five firms listed on Compustat (domestic) or WorldScope (foreign) with less than 10% of sales, income, and assets outside the country of domicile. Similar to Berger and Ofek (1995), we eliminate extreme values where the ratio of actual to implied firm value exceeds 4.00 or is less than 0.25.

Independent variables of interest:

%Foreign Sales	=	Sales made by foreign operations of U.S. MNCs, as a percent of total firm sales. Zero for domestic firms.
Tax Benefit	=	A firm-level measure equal to the difference between a firm's expected tax rate and a firm's actual (effective) tax rate. The actual tax rate is equal to total income tax expense (TXT) divided by pre-tax income (PI). The expected tax rate is equal to a weighted-average (based on the sales in a given country as a percent of total firm sales) of the country-level statutory tax rate. Higher values of *Tax Benefit* imply that a firm has reduced its income tax burden relative to a portfolio of benchmark foreign firms operating in those same countries. We report the *country-level statutory tax rate* for a selection of countries in Table 2 Panel B.
Profit Diversification	=	A firm-level measure equal to the volatility of the U.S. portion of the firm less the volatility of the firm as a whole. Volatility is equal to the standard deviation of return on sales (i.e., net income divided by sales) over the current and previous 4 years. Higher values imply that operating in multiple countries reduces the volatility of a firm's return on sales.

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Corruption	= A firm-level measure equal to a weighted-average across the countries in which a firm operates (based on a the sales in a given country as a percent of total firm sales) of the country-level corruption index. The country-level corruption index is published by Political Risk Services (http://www.prsgroup.com). The country-level index is available for 150 countries and ranges from 0 to 6. We transform the variable such that higher values imply greater corruption. We report the *country-level corruption index* for a selection of countries in Table 2 Panel B.

Price Level Index	= A firm-level measure equal to a weighted-average (based on the sales in a given country as a percent of total firm sales) of the country-level price level index. The price level index is published by the International Monetary Fund http://www.imfstatistics.org/imf/. The country-level index divides the purchasing power parities by nominal exchange rates. The country-level index is available for 209 countries – higher values imply more expensive economies. We report the *country-level price level index* for a selection of countries in Table 2 Panel B.

Cost of Capital	= A firm-level measure equal to a weighted-average (based on the sales in a given country as a percent of total firm sales) of the country-level credit rating. The credit rating is published by Institutional Investor (http://www.institutionalinvestor.com). The country-level rating is available for 160 countries and ranges from 0 to 100 – we set higher values to imply greater credit risk. We report the *country-level credit rating* for a selection of countries in Table 2 Panel B.

Control variables:

%Industry Other	= The sales outside a firm's primary business segment as a percent of total firm sales (SALE). Equal to zero for firms with only one business segment.
Log Firm Value	= The log of total market value (market capitalization (MVE) + book value of total assets (AT) – book value of shareholders' equity (SEQ))).
LTDebt / Firm Value	
	= The ratio of long-term debt (DLTT) to total market value (market capitalization (MVE) + book value of total assets (AT) – book value of shareholders' equity (SEQ)).
CAPX / Sales	= The ratio of capital expenditures (CAPX) to total firm sales (SALE).
EBIT / Sales	= The ratio of earnings before interest and taxes (EBIT) to total firm sales (SALE).
R&D / Sales	= The ratio of research and development expenses (XRD) to total firm sales (SALE).
Advertising / Sales	= The ratio of advertising expenses (XAD) to total firm sales (SALE).

Figure 1: Timeline of trends in multinational activity and industrial diversification: 1984-2008

This figure presents a plot of the mean percent of foreign sales and the mean percent of industrial diversification (percent of sales outside the firm's primary industry) between 1984 and 2008. Dotted lines above and below the primary lines represent 95% confidence intervals. The data used to compile the plot is for the full population of firm appearing in Compustat.
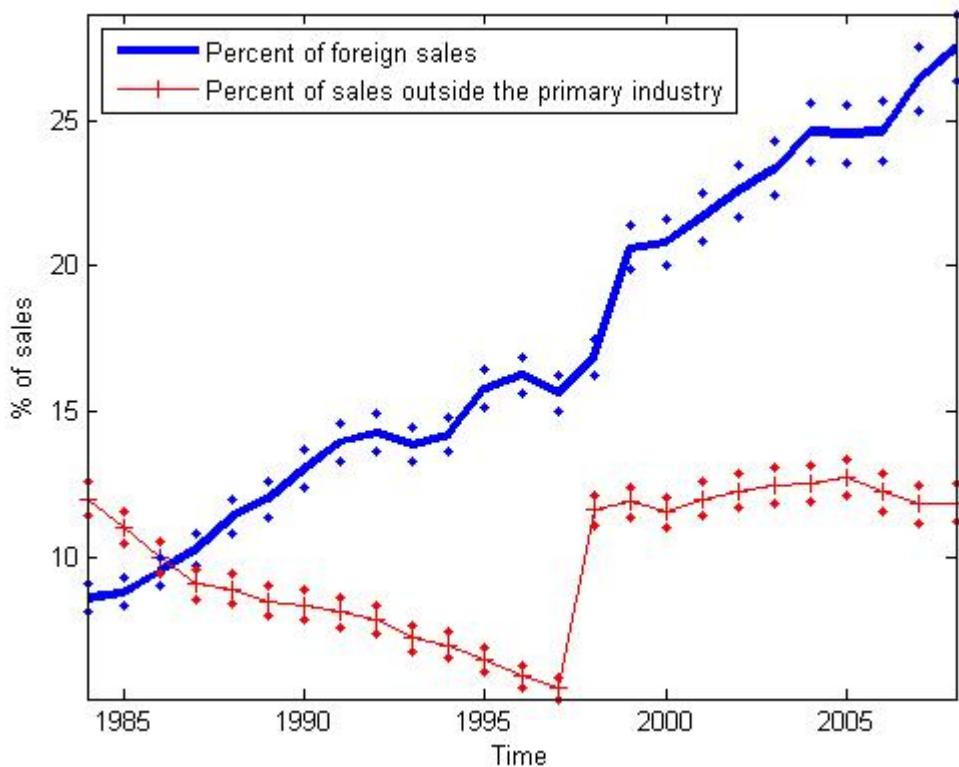
Table 1: Descriptive statistics

Panel A provides the mean and medians of *Excess Value* for the multination firms and single business segment benchmark firms as well as univariate tests across the subsamples. Panel B provides summary statistics for the independent variables for the multinational sample of firms. The p-values of the tests of differences in means are based on t-tests. The p-values of tests of differences in the medians are for a Wilcoxon rank-sum test. All variables are defined in Appendix A.

Panel A: *Excess Value* by sample

| | Multinational Sample | All Benchmark Firms | | Benchmark Subgroups | | | |
| | | | | U.S. | | Foreign | |
	Value	Value	Test of Diff (p-value)	Value	Test of Diff (p-value)	Value	Test of Diff (p-value)
Mean	0.067	0.006	0.00	-0.028	0.00	0.014	0.00
Median	0.076	0.000	0.00	-0.025	0.00	0.000	0.00
N	4,950	33,074		5,998		27,076	

Panel B: Distribution of dependent and independent variables for the multinational sample firms

	N	Mean	25th	50th	75th	StDev
%Foreign Sales	4,950	0.238	0.074	0.190	0.363	0.197
Tax Benefit	4,950	0.081	0.005	0.045	0.157	0.182
Profit Diversification	4,950	0.011	-0.050	0.006	0.065	0.082
Corruption	4,950	1.812	1.636	1.924	2.001	0.358
Price Level Index	4,950	0.987	0.972	0.995	1.007	0.049
Cost of Capital	4,950	9.055	7.254	8.313	9.746	3.041
%Industry Other	4,950	0.212	0.000	0.166	0.414	0.215
Log Firm Value	4,950	6.955	5.823	6.989	8.140	1.687
LTDebt / Firm Value	4,950	0.136	0.009	0.097	0.212	0.145
CAPX / Sales	4,950	0.054	0.020	0.033	0.054	0.101
EBIT / Sales	4,950	0.065	0.031	0.077	0.121	0.138
R&D / Sales	4,950	0.049	0.000	0.013	0.059	0.083
Advertising / Sales	4,950	0.008	0.000	0.000	0.005	0.018

Table 2: WorldScope and BEA samples

Panel A shows the distribution of single-segment foreign firms in WorldScope with at least 90% of firm revenue, income, and assets obtained in the respective home country. Panel B contains median country-level attributes for significant countries represented in our sample. All variables are defined in Appendix A. Panel C defines significant countries as those in which the country operations of U.S. MNCs in BEA data represent at least 0.2% of total firm sales. For significant countries, Panel C compares their representation in terms of MNC subsidiary sales to the distribution of firm observations in Worldscope.

Panel A: Distribution of Worldscope observations over time

Year	Firm observations	
1998	3,040	11.23%
1999	3,203	11.83%
2000	2,659	9.82%
2001	2,363	8.73%
2002	2,267	8.37%
2003	2,259	8.34%
2004	2,327	8.59%
2005	2,241	8.28%
2006	2,442	9.02%
2007	2,468	9.12%
2008	1,807	6.67%
Total	27,076	100.00%

Panel B: Country-level attributes for significant countries

	Country Multiple	Country Corruption Index	Country Statutory Tax Rate	Country Price Level Index	Country Credit Rating
	(1)	(2)	(3)	(4)	(5)
Australia	1.30	1.5	30.0%	0.89	16.2
Belgium	0.95	2.0	34.0%	1.03	11.3
Brazil	1.10	3.0	34.0%	0.53	57.4
Canada	1.58	1.0	36.6%	0.88	9.9
China	2.54	4.0	30.0%	0.41	40.1
France	0.99	3.0	35.4%	1.08	7.3
Germany	0.93	1.5	38.9%	1.10	6.6
Hong Kong	1.13	2.0	17.5%	0.80	31.8
Ireland	1.87	2.5	12.5%	1.14	12.7
Italy	1.44	3.5	34.0%	0.96	16.3
Japan	0.86	2.5	40.9%	1.20	13.5
Korea, South	0.98	3.5	28.0%	0.67	31.7
Malaysia	1.25	3.5	34.0%	0.42	38.3
Mexico	1.00	4.0	34.5%	0.65	41.9
Netherlands	0.83	1.0	23.3%	1.05	6.7
Singapore	1.07	1.5	29.7%	0.65	14.6
Spain	1.58	2.0	35.0%	0.85	13.6
Sweden	0.99	0.5	28.0%	1.18	10.8
Switzerland	1.25	1.5	24.1%	1.32	4.8
Taiwan	1.42	3.0	25.0%	0.76	24.2
United Kingdom	0.94	1.5	30.0%	1.07	7.1
United States	1.15	2.0	35.0%	1.00	7.2

(Table 2 continued)

Panel C: Distribution of observations across significant countries

Country	U.S. Foreign Subsidiary (BEA)			Firms (Worldscope)	
	N (1)	Sales (000s) (2)	% Total Sales (3)	N (4)	% Total N (5)
Australia	1,344	73,305	0.56%	859	3.17%
Belgium	894	52,755	0.40%	169	0.62%
Brazil	959	60,245	0.46%	1,143	4.22%
Canada	2,730	536,767	4.07%	1,181	4.36%
China	922	75,907	0.57%	822	3.04%
France	1,852	183,942	1.39%	540	1.99%
Germany	2,182	275,577	2.09%	480	1.77%
Hong Kong	867	48,100	0.36%	157	0.58%
Ireland	478	36,754	0.28%	34	0.13%
Italy	1,178	82,116	0.62%	111	0.41%
Japan	1,494	148,032	1.12%	2,281	8.42%
Korea, South	659	34,500	0.26%	3,530	13.04%
Malaysia	386	26,027	0.20%	837	3.09%
Mexico	1,405	113,623	0.86%	362	1.34%
Netherlands	1,149	85,105	0.64%	47	0.17%
Singapore	1,098	94,917	0.72%	139	0.51%
Spain	871	63,094	0.48%	129	0.48%
Sweden	712	32,682	0.25%	235	0.87%
Switzerland	726	60,288	0.46%	74	0.27%
Taiwan	592	30,313	0.23%	2,949	10.89%
United Kingdom	3,054	423,934	3.21%	1,997	7.38%
United States (headquarters)	4,951	10,460,880	79.23%	n/a	n/a
Other - Covered by Worldscope	6,893	199,394	1.51%	9,000	33.21%
Other - Not Covered by Worldscope	713	5,352	0.04%	-	-
Total	38,109	13,203,609	100.0%	27,076	100%

Table 3: Regression of firm excess values on the percent of foreign sales

This table contains results of OLS regressions of firm excess value on the percent of foreign sales, the percent of non-primary industry sales, and control variables. All variables are defined in Appendix A. T-statistics and significance levels are computed using clustered standard errors with firm level clustering. Year indicators are included by not reported. Significance levels are indicated by ***, **, and * representing 1%, 5%, and 10% levels, respectively (2-tailed).

	Pred	Dep. Variable = *Excess Value*	
	Pred	*Coefficient*	*t-stat*
%Foreign Sales	+	0.155 **	2.28
%Industry Other		-0.179 ***	-2.84
Log Firm Value		0.135 ***	15.05
LTDebt / Firm Value		-0.311 ***	-3.59
CAPX / Sales		0.642 ***	3.50
EBIT / Sales		0.790 ***	4.69
R&D / Sales		2.585 ***	11.70
Advertising / Sales		1.349 **	2.08
R^2		32.6%	
Observations		4,950	

Table 4: Cross-sectional attributes of the multinational activity

This table contains the OLS regression results of firm excess value on the percent of foreign sales, attributes of multinational activity, and control variables. Year indicator variables are included but not reported. All variables are defined in Appendix A. T-statistics and significance levels are computed using clustered standard errors with firm level clustering. Significance levels are indicated by ***, **, and * representing 1%, 5%, and 10% levels, respectively (2-tailed).

	Pred	Dependent Variable = Excess Value											
		(1)		(2)		(3)		(4)		(5)		(6)	
		Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
%Foreign Sales	+	0.156 **	2.29	0.103	1.48	0.151 **	2.24	0.197 ***	2.79	0.192 **	2.29	0.138	1.60
Tax Benefit	+	0.131 **	2.58									0.112 **	2.19
Profit Diversification	+			0.475 ***	3.13							0.453 ***	2.98
Corruption	+/-					0.015	0.29					0.029	0.60
Price Level Index	+							0.567 *	1.87			0.635 *	1.83
Cost of Capital	+									-0.004	-0.69	0.001	0.10
%Industry Other		-0.180 ***	-2.86	-0.188 ***	-3.02	-0.178 ***	-2.83	-0.181 ***	-2.88	-0.181 ***	-2.86	-0.190 ***	-3.02
Log Firm Value		0.137 ***	15.18	0.135 ***	15.19	0.135 ***	15.05	0.136 ***	15.15	0.136 ***	15.01	0.138 ***	15.31
LTDebt/FirmValue		-0.316 ***	-3.66	-0.306 ***	-3.55	-0.310 ***	-3.58	-0.301 ***	-3.49	-0.310 ***	-3.59	-0.300 ***	-3.48
CAPX / Sales		0.640 ***	3.49	0.627 ***	3.48	0.642 ***	3.50	0.667 ***	3.64	0.649 ***	3.57	0.652 ***	3.62
EBIT / Sales		0.815 ***	4.74	0.814 ***	4.74	0.789 ***	4.68	0.782 ***	4.68	0.789 ***	4.70	0.825 ***	4.74
R&D / Sales		2.530 ***	11.46	2.516 ***	11.49	2.584 ***	11.68	2.548 ***	11.50	2.578 ***	11.65	2.430 ***	11.03
Advertising / Sales		1.325 **	2.05	1.251 *	1.95	1.354 **	2.09	1.293 **	1.99	1.328 **	2.05	1.186 *	1.85
R^2		32.8%		33.0%		32.6%		32.8%		32.6%		33.3%	
Observations		4,950		4,950		4,950		4,950		4,950		4,950	

Table 5: Alternative specifications

Column 1 shows the results of the primary OLS regression from Table 3 recast in a first difference specification, where the change in firm excess value is regressed on changes in the percent of foreign sales and different control variables. Column 2 includes lagged values of *EBIT / Sales* as additional control variables. Year indicator variables are included in the levels regression but not reported. All variables are defined in Appendix A. T-statistics and significance levels are computed using clustered standard errors with firm level clustering. Significance levels are indicated by ***, **, and * representing 1%, 5%, and 10% levels, respectively (2-tailed).

	Pred	Changes (1) Coef.	t-stat	Changes, add lags (2) Coef.	t-stat
%Foreign Sales	+	0.242 **	2.33	0.236 **	2.28
%Industry Other		-0.187 ***	-3.38	-0.176 ***	-3.09
Log Firm Value		0.598 ***	30.88	0.593 ***	29.03
LTDebt /FirmValue		-0.179 **	-2.36	-0.179 **	-2.34
CAPX / Sales		0.093	0.79	0.104	0.86
EBIT / Sales		-0.067 ***	-4.53	-0.096 ***	-2.78
R&D / Sales		1.884 ***	6.87	1.869 ***	6.18
Advertising / Sales		-0.750	-0.75	-0.416	-0.41
EBIT / Sales (lag1)				-0.037	-1.10
EBIT / Sales (lag2)				-0.065	-1.31
R^2		32.2%		31.2%	
Observations		4,464		4,369	