On the Origins of the Multinational Premium*

Jose Fillat
Federal Reserve Bank of Boston

Stefania Garetto
Boston University, CEPR and NBER

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Abstract

We study the relationship between management, multinational expansion, and risk premia. We document two facts: firms run by better managers are more likely to become multinationals (MNEs), and risk premia are higher for current and future MNEs than for firms that remain exclusively domestic. We develop a model in which endogenous matching between heterogeneous firms and managers jointly determines selection into foreign direct investment (FDI) and risk premia. Quantitatively, we use the model to examine how corporate taxation and distortions in the market for managerial talent affect multinational activity, firm risk exposure, and financial market outcomes.

Keywords: multinational firms, management, stock returns.

JEL Classification: F12, F23, F36.

1 Introduction

Managers have an impact on many firm decisions, some of which are related to the firm's global presence and, hence, to the risks to which a firm is exposed. Sergio Marchionne illustrates this point. Before becoming CEO of Fiat in 2004, Marchionne ran Société Générale de Surveillance, a Swiss-based multinational. He leveraged this experience to orchestrate Fiat's acquisition of Chrysler in 2009, establishing a multinational with operations across Europe, North America, and beyond.

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In this paper, we study the relationship between management, firm expansion, and firm risk exposure. More precisely, we examine firm expansion via entry into foreign markets through foreign affiliates (multinational entry). We argue that managers play an important role in the decisions of firms to engage in multinational activity, and that managerial characteristics affect the risk exposure of these firms. Specifically, we focus on the role of the CEO, as CEOs have a strong influence on firms' decisions that affect strategy, international footprint, and risk.

We establish two empirical regularities. Our first fact establishes a relationship between managerial expertise and firm expansion. Firms run by better managers are more likely to become multinationals (MNEs). We proxy for managerial quality using measures of the expertise of a manager within multinational firms and manager compensation measures. We provide evidence on the mechanism linking managerial ability and multinational expansion by showing that firms' fixed costs are correlated with manager characteristics. In particular, the correlation of managerial ability and firm-level fixed costs depends on the firm's international status: MNEs (domestic firms) with high ability managers have lower (higher) fixed costs than MNEs (domestic firms) with low ability managers, reflecting a possible impact of managerial know-how on operating costs.

Our second fact links multinational activity to systematic risk exposure. Both current and future MNEs—the latter defined as firms that operate only in their domestic market at the time of observation, but will subsequently engage in FDI—earn higher average returns and carry higher market betas than firms that never expand abroad. The forward-looking component is the more striking result: the risk premium differential is present before multinational entry, at a time when future MNEs are operationally indistinguishable from domestic firms. This pattern points to the option value of future FDI as itself a priced source of aggregate risk.

To provide a narrative that connects and rationalizes these novel empirical patterns, we nest a dynamic model of foreign direct investment with endogenous firm-manager assignment into a standard consumption-based asset pricing model. In the model, heterogeneous firms decide the type of manager they hire and whether and when to enter the foreign market and become multinationals. Consistent with our empirical evidence, we assume that firms run by high-ability managers have higher fixed costs of domestic operations but lower fixed costs of multinational expansion than firms run by low-ability managers.

The manager hiring process is modeled as a competitive search framework with coordination frictions à la Shimer (2005), where firm characteristics and the effect of managerial ability on firm costs shape the distribution of managerial compensation and the likelihood of a firm-manager match. In the model, on average, more productive firms tend to hire better managers; as a result, firm productivity and managerial ability jointly drive selection into FDI. Unlike the frictionless assignment models used in the existing CEO compensation literature, most notably Gabaix and Landier (2008) and Terviö (2008), our framework generates imperfect positive assortative matching:

coordination frictions imply that better managers work at more productive firms on average, but the allocation is not perfectly sorted. This distinction has important implications for policy analysis. In perfect assignment models, policy shocks affect compensation but leave the allocation of talent unchanged, since rank-based matching pins down who works where. In our setting, shocks to the value of multinational activity alter not only how much managers are paid but also which managers are matched with which firms, allowing us to trace the reallocation of managerial talent in response to policy.

Aggregate risk in the model stems from fluctuations in aggregate consumption growth, which drive the stochastic discount factor. Firm-level expected returns are governed by the covariance of firm value with the stochastic discount factor. That is, firms whose value falls when the marginal utility of consumption is high are systematically riskier and earn a higher premium in equilibrium. The key mechanism linking this standard asset pricing framework to our empirical facts is operating leverage. Domestic firms run by high-ability managers face amplified operating leverage on their existing operations while simultaneously holding a more valuable option to expand abroad. Both channels load onto systematic risk and together generate the forward-looking return differential between domestic firms and future MNEs that we document in the data.

The model delivers clear theoretical predictions that rationalize the empirical regularities we document. First, since high-ability managers reduce the fixed costs of FDI, firms run by better managers are more likely to become MNEs. Second, since domestic firms run by high-ability managers have a higher option value of starting FDI, they have higher expected returns than domestic firms run by low-ability managers. Since domestic firms run by higher ability managers are more likely to become MNEs, these predictions rationalize the future MNEs' risk premia. Lastly, our model predicts a positive correlation between managerial compensation, managerial ability, and the multinational status of the firm, a feature that is also consistent with the data.

This is the first paper to document a systematic relationship between managerial characteristics, firms' multinational status, and risk premia. Since the assumptions we make in setting up the model are carefully driven by empirical evidence, we are confident in exploring its lessons further. We calibrate the model to match moments related to aggregate multinational activity, managerial compensation, and expected returns. We then exploit the implications of the model in a quantitative analysis that studies the effects of taxing large corporations on aggregate real and financial market outcomes. We study the effects of two measures: a tax on the foreign profits of MNEs and a tax on the profits of firms with high CEO salaries, a measure that has been proposed and discussed in the US Congress. Both measures affect FDI both directly and indirectly, through their distortionary effects on selection into multinational status and on firm-manager matching. While the two measures essentially target the same group of firms, large multinational corporations, our analysis shows that the two types of taxes have different quantitative effects as they affect firms'

adjustment margins differently. For example, a 25% tax on the foreign profits of MNEs reduces the share of MNEs in the economy by more than 11 percentage points, while a comparable tax on the profits of firms with high CEO pay only reduces the share of MNEs by 3 percentage points, as a distortion in the market for managerial talent elicits reallocations that dampen the negative effects of the tax. In addition, the two taxes have opposite effects on the market equity premium.

Our analysis is made possible by a novel data set derived from multiple sources. We merge firm-level data from Compustat and the Center for Research on Security Prices (CRSP) with manager information from Execucomp and Boardroom Alpha, which track the CEOs of a subsample of publicly listed firms. CRSP contains data on one of our dependent variables of interest, the stock returns of the firm, used to construct our measures of risk premium. Compustat has balance sheet and income statement data that allow us to control for several firm characteristics. We recover information about the multinational status of the firms from the SEC 10-K filings using a textual analysis algorithm that identifies the existence and location of each firm's foreign subsidiaries. The resulting sample is an unbalanced matched firm-manager panel for the period 1993-2017. It is important to point out that our data are unique in that they allow us to compare a firm's characteristics before and after its first episode of multinational entry, and to observe the managerial history of the firm.

Our emphasis on management links this paper to a rich literature on the role of managers for firms' outcomes. Theoretically, the link between managerial ability and the firm's returns to scale is reminiscent of Lucas (1978), where managerial ability affects firms' returns to scale through a "span-of-control" technology.[1] In our setup, the relationship between managerial ability and returns to scale is modulated by firms' heterogeneous fixed costs, consistent with the empirical evidence. From an organizational perspective, the role of managers in organizing global firms is studied by Garicano and Rossi-Hansberg (2004), Garicano and Rossi-Hansberg (2006), and Caliendo and Rossi-Hansberg (2012), who model firms as knowledge-processing hierarchies, where managers act as problem-solvers. We contribute to this literature by shifting the focus from managers as coordinators of knowledge to managers as experts who facilitate multinational expansion and shape firms' exposure to aggregate risk.

Understanding the role of managers in firms' outcomes requires understanding how firms and managers are matched. We adapt Shimer (2005)'s competitive search framework, which produces positive assortative matching on average but, unlike frictionless assignment models such as Terviö (2008) and Gabaix and Landier (2008), allows policy to reallocate talent across firms. An assignment model is also at the heart of Hummels et al. (2026), who study the effect of trade shocks on firm value and CEO compensation. Our policy analysis complements this work by studying shocks

[1] Burstein and Monge-Naranjo (2009) embed the setup of Lucas (1978) into a Ricardian model in which home managers can produce abroad. Caselli (2025) studies the effects of caps on executive pay in a Lucas (1978) span-of-control economy.

to multinational sales.

Empirically, several papers examine the relationship between management and firm performance using the World Management Survey (WMS), most notably, Bloom and Van Reenen (2007), and Bloom et al. (2013). Using Portuguese data, Mion and Opromolla (2014) find an important role for managers' previous export experience in facilitating the exports of the firms they run. Our empirical analysis finds a similar pattern for FDI.

This paper contributes to the literature at the intersection of international economics, asset pricing, and corporate finance. A growing literature studies the relationship between risk, stock returns, and firms' international activities: De Sousa et al. (2020), Esposito (2022), and Heiland (2021) examine export decisions under risk; Barrot et al. (2019) and Bianconi et al. (2021) link globalization and trade policy to asset prices. The analysis of MNE decisions under risk is more complex, as it involves production location choices. Rowland and Tesar (2004), Ghironi and Wolfe (2018), Ramondo and Rappoport (2010), and Fillat et al. (2015) study the risk implications of multinational production. Fillat and Garetto (2015) document stock return differentials among multinationals, exporters, and domestic firms, rationalizing them through operating leverage driven by fixed costs. We add to this work by examining the role of managers in the dynamic relationship between multinational entry and stock returns. In corporate finance, Bertrand and Schoar (2003) and Malmendier and Tate (2008) study how managers affect firm behavior and performance, and Schoar et al. (2020) study the effect of managers on a firm's exposure to systematic risk. We find that managers affect both the risk exposure of a firm and its likelihood of engaging in FDI.

Our paper also speaks to the production-based asset pricing literature connecting firm-level decisions to expected returns. Fama and French (1993) show that market betas alone are insufficient to describe cross-sectional return differences, implying that firms are exposed to more than one priced source of aggregate risk. Two mechanisms have been proposed: Berk et al. (1999) and Carlson et al. (2004) emphasize growth options versus assets in place, while Novy-Marx (2011) emphasizes operating leverage from fixed costs. Gomes et al. (2003) show that cross-sectional differences in firm productivity generate additional heterogeneity in factor loadings conditional on the firm's life cycle. Our paper extends this literature. First, managerial ability modulates the productivity-return relationship by reshaping the fixed costs, making the joint distribution of productivity and managerial type the relevant state variable for risk exposure. Second, the option to expand into foreign markets is itself a priced growth option whose systematic risk is observable ex ante, in the returns of future MNEs before entry occurs. This gives the cross-sectional predictions of Berk et al. (1999) and Novy-Marx (2011) an international counterpart, where the two channels operate simultaneously and reinforce each other.

2 Data and summary statistics

Our data set derives from combining several sources: the linked CRSP-Compustat data, the 10-K files, Execucomp, and Boardroom Alpha. For robustness checks, we also use information from the WMS.[2] Our sample period spans 25 years, from 1993 through 2017.[3]

The linked CRSP-Compustat dataset contains quarterly accounting data and monthly stock returns of publicly listed firms in the United States, providing a comprehensive picture of firms' accounting data over a long period of time. CRSP-Compustat, however, has no information on firms' international activities. We recover information about each firm's exposure to international markets from the firm's 10-K filings, which firms with publicly traded securities are required to file annually by the Securities and Exchange Commission (SEC). More precisely, we extract data from the text of each firm's Exhibit 21, a document that lists the firm's set of significant affiliates and the countries where they are located.[4] We define a firm as a *multinational* in a given year if it reports the existence of at least one foreign affiliate in its Exhibit 21. Alternatively, we define a firm as *domestic* in a given year if its Exhibit 21 does not report the existence of any foreign affiliates.[5] The resulting sample contains data for 11,982 firms, among which 41.2 percent do not report any foreign affiliates at any point in time (*always domestic* firms), while 23.8 percent report the existence of foreign affiliates every year they are present in the sample (*always MNEs*).[6] The remaining firms exhibit changes in international status during their life: we define as *new MNEs* those firms that enter the sample as domestic and gain exposure to foreign markets by establishing a foreign affiliate. We use the term *other firms* to refer to firms that enter the sample as MNEs but stop reporting the existence of foreign affiliates later in their life. It is worth noting that our merged data set is unique in its capacity to identify US firms' multinational entry: the 10-K affiliates reporting informs us about the extensive margin of multinational activity, both in aggregate and by foreign country.[7]

[2]See Bloom et al. (2013) for a description of the survey.

[3]We set the start of the sample period to 1993 because the coverage of the Boardroom Alpha data is significantly worse prior to that year.

[4]The 10-K data include both direct and indirect affiliates in the Exhibit 21. Inclusion in the data is determined by a significance threshold based on the affiliate's size relative to the consolidated entity. More precisely, an affiliate must be reported if it meets any of three tests: the firm's investments in and advances to it, its total assets, or its contribution to the firm's consolidated pre-tax income each exceed 10% of the corresponding consolidated total. Supplemental Appendix I contains details of the textual analysis procedure and examples of the information contained in Exhibit 21.

[5]Non-multinational firms could also be exposed to foreign markets through exports, as explored in Fillat and Garetto (2015). In a robustness exercise, we performed all the empirical analysis contained in this paper after dropping from the sample all firms that report exports but not foreign affiliates at any point in time. The results, available upon request, are qualitatively unchanged compared with the baseline specification.

[6]These numbers reveal the selection of firms populating the Compustat sample: since the data set contains only publicly listed firms, only the largest firms in the economy are represented, so the share of multinationals is much higher than in the entire population of firms.

[7]Most empirical analyses of US MNEs use affiliate-level data on the operations of multinational enterprises from the Bureau of Economic Analysis (BEA), which is a sample that includes only MNEs; hence, it does not allow us to observe these firms *before* they become MNEs. In our sample, foreign affiliates are located in 169 countries, with a

Table 1 reports firm counts, size characteristics, and returns by multinational status.[8] MNEs are substantially larger than domestic firms across all size measures—sales, employment, and market capitalization. A comparison of mean returns across groups shows that i) MNEs have, on average, higher returns than domestic firms, as first documented by Fillat and Garetto (2015); and ii) new MNEs have higher returns than firms that are MNEs throughout the entire sample period. Interestingly, the groups that present higher mean and median returns also tend to have lower standard deviations of returns: the returns of new MNEs tend to be higher *and* less volatile than the returns of other firms. The return differentials shown in Table 1 are robust to the inclusion of size controls and industry-quarter fixed effects.

Table 1: Firm Characteristics and Stock Returns by Firm Type.

	Revenue (USD Million)	Employees (Thousands)	Mkt. Cap. (USD Million)	Returns Mean (%)	Returns S.D. (%)	Nr. of Firms
Always Dom.	85.96	1.59	470.96	4.37	16.87	4936
Always MNE	740.86	9.83	4508.23	5.31	15.89	2846
New MNE	312.00	5.06	1426.04	7.15	10.60	2732
Other Firms	333.99	5.64	1517.44	6.73	11.52	1382

Source: CRSP/Compustat and SEC 10-K filings.

We augment our firm-level data with management information by merging in CEO-firm pairs obtained from Execucomp and Boardroom Alpha. These data sets track several levels of executive positions. We focus on the CEO as an important driver of the decisions that are relevant to our paper: firm expansion into foreign countries. 46.05% (28.11%) of firms in our sample have information about the identity of their CEO at some point in their lifetime (for their entire lifetime). The CEOs sample is composed of 10,391 managers, 690 (6.64%) of whom change company at some point in the sample period. Since managers exhibit limited mobility across firms, the average (median) number of managers that a firm has during its life in the sample is 1.9 (1).

Our analysis links firms' MNE expansion to managerial characteristics. Given the difficulty of measuring managerial ability, we focus on observable characteristics related to the involvement of managers in multinational activity: 70.07% of managers in our sample worked for an MNE at some point, 19.59% oversaw a domestic-to-multinational transition, and 35.66% oversaw entry into a new country. We use this information to construct measures of managerial ability based on multinational expertise.

geographic distribution comparable to BEA data. See Supplemental Appendix Figures II.1 and II.2. Garetto et al. (2026) report the same sorting properties of FDI destinations for US MNEs using BEA data.

[8] Stock returns are defined as one-year capital gains plus dividend yields: $R_{t+1} = (p_{t+1} + d_t)/p_t$, where p_t denotes the price of a share and d_t the dividends per share at time t. We identify firm-level returns with the returns of the firm's common equity. We compound monthly returns to the annual level for the summary statistics and to the quarter level for the regressions in Section 3.

Finally, we perform some robustness exercises using a smaller sample of firms which exploits additional data on management practices contained in the WMS.[9] We use the aggregate score of management practices for the subset of surveyed firms that are headquartered in the United States and are publicly traded.

3 Empirical Analysis

In this section we establish two empirical findings: 1. Firms run by higher ability managers are more likely to become multinationals; 2. Current and future MNEs command a higher risk premium than firms that sell always and only in their domestic market. The uniqueness of our merged data, which contains information about firms' characteristics, international presence, and identity of the managers, allows us to explore these three dimensions simultaneously.

3.1 Management and Multinational Entry

There is a large empirical literature documenting the role of managers and managerial practices for various aspects of firm performance.[10] Inspired by this literature, we explore the relationship between managerial characteristics and firm expansion through multinational entry. We run the following regression:

$$M_{it} = \alpha + \beta A_{it} + \gamma X_{it} + \delta_{NAICSt} + \delta_i + \varepsilon_{it}. \quad (1)$$

The left-hand side variable M_{it} is an MNE dummy that takes the value of one if firm i reports having at least one foreign affiliate in quarter-year t. A_{it} is a measure of the ability of the manager that runs firm i at time t. We construct several measures of managerial ability, leveraging the information that our data provide about the employment history of the managers. In particular, we look at the expertise of firm i's manager within multinational firms: A_{it} denotes a dummy variable that takes the value of one if the manager had previously guided a firm through a transition from domestic to multinational (column 1), the number of countries where the manager opened affiliates while working at previous firms (column 2), or a dummy variable that takes the value of one if the manager previously worked at an MNE (column 3). In column 4, we proxy managerial ability with manager compensation.[11] The vector of time-varying firm-level controls X_{it} includes the capital/labor ratio,

[9] The survey methodology is described in detail in Bloom and Van Reenen (2007). Each surveyed firm provides scores for different management practices for each firm. The management score is an aggregation of practices related to operations management, performance monitoring, target setting, leadership management, and talent management. We successfully match 238 firms to our Compustat sample.

[10] Bloom et al. (2013) show that multinational corporations consistently achieve higher management scores in the WMS compared to domestic firms, regardless of their location or country of incorporation.

[11] Since only about 20% of managers guide firms through multinational entry, and managers' mobility is low, only about 1% of managers have high ability according to the most restrictive definition (having guided a previous firm through a transition from domestic to multinational).

sales per employee (our measure of productivity), measures of size (such as total revenues and market capitalization), leverage, the firm annual market *beta*, and industry-quarter and firm fixed effects.[12]

Table 2: Becoming a Multinational: Management Matters

	(1)	(2)	(3)	(4)
Previous MNE transition	0.052***			
	(0.013)			
Number of country entries		0.006***		
		(0.002)		
Previous work at MNE			0.034***	
			(0.006)	
Log-compensation				0.008***
				(0.001)
Observations	133,519	133,519	133,519	111,428
Adjusted R-squared	0.701	0.701	0.701	0.719

Note: The dependent variable is a dummy taking a value of 1 if a firm is a multinational in quarter-year t. The variable "Previous MNE transition" ("Previous work at MNE") takes the value of one if the manager previously guided another firm's transition from domestic to MNE (worked at an MNE). "Number of country entries" denotes the natural log of 1 + the number of countries where previous MNEs established new affiliates under the manager's leadership. All specifications include market capitalization, leverage ratio, sales per employee, capital per employee, and the firm *beta* as controls, and industry-quarter and firm fixed effects. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: CRSP/Compustat, SEC 10-K filings, Execucomp, Boardroom Alpha.

The results of these regressions are shown in Table 2. All the proxies of managerial ability are positively correlated with the multinational status of the firm.[13] Since the regressions include firm fixed effects, coefficients are identified from firms that change multinational status during the sample period. To be precise, a domestic firm that is managed by a CEO who has expertise in expanding a domestic firm beyond domestic borders has a 5.2 percentage point higher probability of becoming multinational compared with a domestic firm managed by a manager without such

[12]The market *beta* of the primary security of firm i captures the comovement of the firm's excess returns with the aggregate excess market returns. We computed yearly market *betas* at the firm level by running regressions of daily individual security returns on the market aggregate returns (NYSE, AMEX, and Nasdaq) for each year that firm i is present in our sample. The risk-free rate is the yield on the three-month US Treasury Bill. The purpose of adding the market *betas* is to control for each firm's individual exposure to aggregate market risk. Results are robust to alternative ways to compute firm-level betas (e.g., at the quarterly level or annual rolling windows).

[13]In the interest of space, we only show the coefficients on the managerial ability proxies. Supplemental Appendix Table II.1 reports the full results of regression (1), including the estimated coefficients on the controls X_{it}.

expertise. In addition, for every country that the manager has expanded into in their previous jobs as CEO, the probability of becoming multinational increases by 0.6 percentage points. Given that the median (average) number of countries entered by a manager is 5 (9.72), hiring a manager who has led previous firms through one more country entry episode than the median (average) leads to an increase of 3.6 (6.4) percentage points in the probability of becoming a multinational.[14]

The selection of firms' CEOs is not exogenous, and could introduce endogeneity bias into our results. Firms planning to expand abroad may systematically hire CEOs with multinational expertise, so the observed correlation between managerial ability and MNE entry could reflect selection rather than a causal effect of managerial expertise. To address this concern, we exploit quasi-exogenous variation in CEO turnover arising from CEO deaths. In Appendix A we describe the instrumental variable approach. Using the unexpected deaths of CEOs, we instrument the hiring of new CEOs to isolate the causal effect of managerial ability on MNE entry.

What is the mechanism by which managerial ability increases the likelihood that a firm engages in FDI? The international trade literature, both empirical and theoretical, has stressed the importance of fixed frictions as a deterrent to firm entry into foreign markets (see, among others, Helpman et al. 2004). To shed light on the mechanism linking managerial characteristics and multinational entry, we investigate the relationship between managers' characteristics and the firms' fixed costs. To this end, we run a regression analogous to (1), but with a measure of firm-level fixed costs ("Selling, General and Administrative Expense") on the left-hand side:[15]

$$\log(f_{it}) = \alpha + \beta_1 M_{it} + \beta_2 A_{it} + \beta_3 M_{it} \times A_{it} + \gamma X_{it} + \delta_{NAICSt} + \delta_i + \varepsilon_{it}. \tag{2}$$

Regression (2) examines the correlation of firm-level fixed costs with multinational status M_{it} and managerial ability A_{it}. The results are reported in Table 3.[16] While MNEs tend to have higher fixed costs than non-multinational firms, consistent with the theoretical literature (see Helpman et al., 2004), the relationship between managerial ability and firm's fixed costs depends on the firm's multinational status. All our proxies of managerial ability are positively correlated with the fixed

[14]Table 2 focuses on manager characteristics that are measurable in our data, and that appear intuitively important. In line with the methods of the corporate finance literature (see most notably Bertrand and Schoar, 2003 and Schoar et al., 2020), Supplemental Appendix Table II.2 reports the result of a regression analogous to (1), but where managerial characteristics are replaced by manager fixed effects. Lastly, the role of managerial practices for multinational activity is also confirmed by a probit regression run on the smaller WMS sample: managerial practices are positively correlated with and contribute to explaining a firm's multinational status, as shown in Supplemental Appendix Table II.3.

[15]The variable "Selling, General and Administrative Expense" in Compustat *"represents all commercial expenses of operation (i.e., expenses not directly related to product production) incurred in the regular course of business pertaining to the securing of operating income"*. Since Compustat does not report separate accounting data for a firm's headquarters and its subsidiaries, this measure should be interpreted as describing the total fixed costs of the corporation. The variable includes manager compensation, which is a negligible share of it.

[16]Also for this table, in the interest of space, we do not report the estimated coefficients on the controls. Supplemental Appendix Table II.4 reports the full results of regression (2).

operating costs of domestic firms, while the correlation with the fixed operating costs of MNEs is negative. This is an important finding, as fixed costs play a crucial role in multinational entry.

Table 3: Managerial Ability and Firm Fixed Costs

	(1)	(2)	(3)	(4)
MNE	1.183***	1.178***	1.176***	1.010***
	(0.015)	(0.015)	(0.015)	(0.157)
Previous MNE transition	0.239***			
	(0.086)			
MNE x Previous MNE transition	-0.096			
	(0.098)			
Number of country entries		0.389***		
		(0.030)		
MNE x Number of country entries		-0.138***		
		(0.031)		
Previous work at MNE			0.524***	
			(0.053)	
MNE x Previous work at MNE			-0.119**	
			(0.057)	
Log-compensation				0.612***
				(0.017)
MNE x Log(compensation)				-0.035*
				(0.020)
Observations	102,379	102,379	102,379	86,433
Adjusted R-squared	0.454	0.457	0.456	0.614

Note: The dependent variable is log-firm-level fixed costs, measured as "Selling, General and Administrative Expense". The variable "Previous MNE transition" takes the value of 1 if the manager has previously guided another firm's transition from domestic to MNE. "Number of country entries" denotes the natural log of 1 + the number of countries where previous MNEs established new affiliates under the manager's leadership. "Previous work at MNE" captures whether the manager has ever worked at an MNE in the past. All specifications include market capitalization, leverage ratio, sales per employee, capital per employee, and the firm *beta* as controls, and industry-quarter fixed effects. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: CRSP/Compustat, SEC 10-K filings, Execucomp, Boardroom Alpha.

Building on the evidence shown in this section, we assume that managerial ability affects the fixed costs of domestic and foreign operations differently in our model.

3.2 Multinational Premia

We follow two complementary approaches to establish a relationship between firms' multinational status and firm-level risk premia. First, we study the correlation of firm characteristics, including indicators of multinational activity, with expected returns and firm-level market *betas*. We take expected returns as a measure of risk because, keeping everything else constant, and under standard risk aversion specifications, riskier investments should have higher expected returns than safer investments. The firm-level market *betas* represent the individual firms' exposure to systematic risk.[17] Second, we examine whether the covariance of indicators of multinational activity with aggregate risk factors drives the risk premia of multinational firms. This analysis takes the form of portfolio regressions in which the construction of the portfolios is based on multinational status.

3.2.1 Characteristics Regressions

To identify a cross-sectional correlation between a firm's multinational status and its stock returns, we regress firm-level stock returns and market *betas* on MNE dummies and on a set of firm characteristics, following an approach similar to Fillat and Garetto (2015). The estimates provide insights into how firms' multinational status is associated with their systematic risk exposure.

In these specifications, we acknowledge that multinational activity is an endogenous choice of the firm, and our data allow us to identify the time when firms start operating abroad. We take advantage of this dimension of the data to investigate whether multinational firms exhibit higher returns and market *betas* than domestic firms not only during, but also prior to their engagement in foreign markets. To do so, we examine both *current* and *future* MNEs, where we define future MNEs as firms that are currently domestic, but will become MNEs in future periods. Stock returns can be influenced by the market's anticipation of the future MNE status. This concern is mitigated in the regression of market *betas* on firm characteristics, as the market *betas* are a backward-looking measure, and their relationship with future MNE status can be examined with a lower degree of look-ahead bias.

We compare the stock returns and market *betas* of current and future MNEs with the stock returns and market *betas* of firms that are domestic for the entire sample period. To do so, we regress:

$$y_{it} = \alpha + \beta_m M_{it} + \beta_f [1 - M_{it}] \cdot \max_{\tau > t} M_{i\tau} + \gamma X_{i,t} + \delta_{NAICSt} + \varepsilon_{it}, \tag{3}$$

where the dependent variable y_{it} denotes the annual stock returns, or the annual market *beta*, of firm i in year t. Like in regression (1), M_{it} is a dummy variable that takes a value of 1 if firm i is

[17] We use long-run average stock returns as an empirical measure of expected returns. The firm-level market *betas* are estimated by regressing the daily stock returns of individual firms on market returns (NYSE, AMEX, and Nasdaq), for every year. The distribution of the estimated market *betas* is shown in Supplemental Appendix Figure II.3.

an MNE at time t. The combination of dummies $[1 - M_{it}] \cdot \max_{\tau>t} M_{i\tau}$, instead, takes a value of 1 if firm i is not an MNE at time t, but will become an MNE at some future time $\tau > t$. The other controls have been defined in the previous section.

The coefficient of the current MNE dummy, β_m, identifies the cross-sectional differential stock returns (firm *beta*) of multinational firms compared with always domestic firms (the excluded category) within an industry-quarter bin. The coefficient β_f measures the additional stock returns (firm *beta*) that future MNEs carry over always domestic firms. To correct for the fact that the number of future MNEs decreases by construction toward the end of our sample period, we run the regression using data for the first half of the sample only: $t = 1993, ...2005$, so that τ can go up to 12 years after t.

Table 4: Stock Returns and Market *betas* of Current and Future MNEs.

	ret_{it}		$beta_{it}$	
	(1)	(2)	(3)	(4)
Current Multinationals	1.119***	0.949***	0.163***	0.134***
	(0.285)	(0.307)	(0.008)	(0.008)
Future Multinationals	1.570***	1.424***	0.118***	0.080***
	(0.328)	(0.353)	(0.009)	(0.009)
Observations	30,992	28,885	30,992	28,885
Adjusted R-squared	0.059	0.056	0.243	0.245
Current minus Future MNE p-Val	.157	.139	0	0
PSM	No	Yes	No	Yes

Note: The dependent variable y_{it} is annual firm-level stock returns (columns 1-2) or firm-level annual market betas (columns 3-4). Controls include market capitalization, leverage ratio, sales per employee, capital per employee, and the firm *beta* (columns 1-2). All specifications include industry-quarter fixed effects. The sample excludes firms that enter the sample period as MNEs and later switch to only domestic operations. Columns 2 and 4 feature a propensity score-weighted control group. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: CRSP/Compustat and SEC 10-K filings.

Table 4 presents the results.[18] Columns 1-2 show that multinational firms exhibit significantly higher stock returns compared with domestic firms, consistent with what Fillat and Garetto (2015) show for the manufacturing sector. In addition, Table 4 indicates that, prior to MNE entry, future MNEs already have higher stock returns compared with domestic firms. In our baseline specification (column 1), the premia for current and future MNEs are both sizable, and they are statistically different from each other. For robustness, the specification in column 2 uses a propensity-score-matching procedure to restrict the sample by using a subset of domestic (untreated) firms that

[18]Supplemental Appendix Table II.5 reports the full results of regression (3).

are comparable to the current and future MNEs.[19] The results are analogous to the baseline specification.

Columns 3-4 report the results with the firm *beta* as the dependent variable. Current and future MNEs exhibit systematically higher firm *betas* than domestic firms, controlling for measures of size and profitability and for industry- and time-specific risk factors, indicating a higher exposure of these firms to aggregate risk.

3.2.2 Portfolio Regressions

We complement the characteristics regression with a more common approach in the finance literature to show evidence about current and future MNEs' exposure to systematic risk. Following Fama and French (1993), firm characteristics may be proxies for non-diversifiable factor risk.[20] We form time-invariant portfolios based on multinational status to estimate portfolio covariances with systematic risk factors as drivers of risk premia. Higher average returns in the cross section indicate that MNEs are riskier than domestic firms. We adopt a classic asset pricing interpretation and view the risk exposure of a firm as reflecting a higher covariance of its stock returns with systematic risk factors.

The returns of each portfolio are given by the market capitalization-weighted average of the stock returns of the firms in the portfolio. For each portfolio, we run one time-series regression of returns on the Fama-French factors. The results are displayed in Table 5.

The higher returns of multinational portfolios are partially explained by higher market betas: multinationals' stock returns covary more strongly with the aggregate market than those of domestic firms. Consistent with this evidence, in the model in Section 4, firms' cash flows are exposed to an aggregate source of risk, and endogenous multinational status drives heterogeneous exposure.

To summarize, the evidence reported in this section establishes the existence of sizable risk premia for current and future MNEs. The results for future MNEs are particularly striking: these firms carry higher systematic risk exposure before multinational entry, at a time when they are operationally indistinguishable from permanent domestic firms. Our earlier evidence on the importance of managerial characteristics for firm-level fixed costs and selection into multinational status suggests a mechanism by which managerial ability jointly shapes firms' expansion decisions and

[19] For the propensity-score-matching regression, we first compute a logistic regression for the treatment (current MNE) probabilities as a function of firm characteristics. Each treated firm is matched with the untreated firm that has the highest propensity score. These matched firms are used in the regression (3), along with the treated firms.

[20] The CAPM explains higher asset returns as compensation for greater covariance with the aggregate market portfolio. Fama and French (1993) extend this to a three-factor model in which expected returns are also driven by exposure to size (SMB: small-minus-big market capitalization) and value (HML: high-minus-low book-to-market) factors, which empirically provide independent information about average returns beyond the market factor.

Table 5: Fama-French Portfolio Regressions: MN status

	Always Domestic	Future MNEs	Always MNEs
β_{MKT}	**0.821*** **	**1.011*** **	**0.977*** **
	(0.031)	(0.033)	(0.019)
β_{HML}	0.435***	0.225***	-0.158***
	(0.045)	(0.047)	(0.028)
β_{SMB}	0.388***	0.349***	-0.125***
	(0.034)	(0.036)	(0.021)
Constant	0.011***	0.010***	0.010***
	(0.001)	(0.001)	(0.001)
Observations	156	156	156
Adjusted R-squared	0.841	0.889	0.958

Note: The dependent variable is the market capitalization-weighted average of the stock returns of firms in each portfolio at a monthly frequency. Sample years 1993-2005. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Source: CRSP/Compustat and SEC 10K filings.

risk premia.[21] We formalize this mechanism in the structural model that follows.

4 Model

Following a long tradition in international trade that started with Melitz (2003), in the model, we assume that firms are heterogeneous in productivity. Firms choose the type of manager they hire, whether and when to become MNEs, and their output levels in each country they operate in.

The results of the Fama-French regressions in Table 5 show that stock returns are linked to firm-level exposure to aggregate factors. Consistent with this evidence, we assume that aggregate risk factors are reflected in the agents' intertemporal marginal rate of substitution, so that firm-level stock returns are driven by heterogeneous firm-level exposure to aggregate factors. More precisely, the expected returns of firm i are higher the lower the covariance between the agents' stochastic discount factor (dM/M) and changes in the value of the firm (dV_i/V_i):

$$E(ret_i) - r_f = -r_f \cdot Cov\left(\frac{dM}{M}, \frac{dV_i}{V_i}\right), \tag{4}$$

where $E(ret_i)$ denotes the expected return of firm i, and r_f denotes the risk-free rate.

The asset pricing component of our model is a simple consumption-based CAPM model, where

[21] It would be reasonable to ask why we do not empirically examine the relationship between managerial ability and stock prices directly. Unfortunately, the limited variation in managerial ability variables is insufficient to explain returns, which are notoriously hard to predict.

assumptions on preferences and risk aversion imply an expression for the stochastic discount factor dM/M. Changes in the value of the firm, dV_i/V_i, are endogenous and firm-specific, and depend on firms' manager hires and FDI decisions. The role of the model is to make explicit how $Cov\left(\frac{dM}{M}, \frac{dV_i}{V_i}\right)$ depends on firm productivity and manager ability.

In the asset pricing literature tradition, we present the model in a partial industry equilibrium. We compute price indexes in the economy by aggregating firms' individual prices depending on firm's multinational status, but we take aggregate consumption in each country and workers' wages as given. This is equivalent to saying that we do not impose an aggregate labor market clearing condition or a goods market clearing condition.

4.1 Preferences, Technology, and Shock Structure

There are two countries, Home and Foreign, populated by agents with identical preferences:

$$U = \int_0^\infty e^{-\rho t} \frac{C(t)^{1-\gamma}}{1-\gamma} dt, \tag{5}$$

where $\rho > 0$ is the subjective discount factor, and $\gamma > 1$ denotes risk aversion. Variables related to the foreign country are denoted by an asterisk. The consumption level C is a CES aggregate of differentiated varieties:

$$C(t) = \left[\int c_i(t)^{\frac{\eta-1}{\eta}} di \right]^{\frac{\eta}{\eta-1}}, \tag{6}$$

where $\eta > 1$ denotes the elasticity of substitution across varieties.

Each country is populated by a continuum of firms of given mass N_f. Firms are heterogeneous in their productivity level φ. Firm-level productivity is drawn at firm birth from an exogenous and time-invariant distribution $G(\varphi)$. Since each firm produces a unique variety, as it is customary in the literature, we denote a variety by the productivity level of the firm that produces it, $c_i(t) = c(\varphi; t)$.

Firms hire labor to produce output, and operate under monopolistic competition. The production function is linear in labor: $c(\varphi; t) = \varphi l(t)$. Given CES demand, a firm's variable profits, $\tilde{\pi}(\varphi; t)$, can be written as:

$$\tilde{\pi}(\varphi; t) = A(t)\varphi^{\eta-1} C(t) \tag{7}$$

where $A(t) = \frac{1}{\eta-1}\left(\frac{\eta}{\eta-1}\right)^{-\eta}\left(\frac{1}{w}\right)^{\eta-1} P(t)^\eta$ is an aggregate demand shifter, w denotes the wage, which we take as exogenous, and $P(t)$ is the ideal price index: $P(t) = \left[\int p(\varphi; t)^{1-\eta} d\varphi\right]^{\frac{1}{1-\eta}}$.

Firms can operate in their home country, and by paying a sunk cost F they can enter the foreign country and produce and sell there, so becoming MNEs. A firm's labor productivity is the same at home and abroad, and FDI is only horizontal in scope (FDI sales are entirely directed to the host

market).[22] In addition, there are fixed operating costs f_D, f_I to be paid to produce in the domestic and foreign country, respectively.

Managers. Each country is also populated by a continuum of managers of given mass N_m. Managers are heterogeneous in their ability a. Managerial ability is drawn from an exogenous and time-invariant distribution. At birth, firms and managers are matched through a competitive search process, and firm-manager matches last for the entire lifetime of the firm.[23] We assume that a firm hires only one manager, independently of its multinational status, and the manager handles operations in all markets where the firm is active. We describe the firm-manager assignment problem in Section 4.4.

We borrow Lucas (1978)'s interpretation whereby a manager is akin to a technology that affects a firm's output through the firm's returns to scale. Our implementation of this idea, consistent with the empirical evidence shown in Table 3, is that managers do not directly affect firm output but affect firm-level fixed operating costs. More precisely, we assume that $f'_D(a) > 0$ and $f'_I(a) < 0$: the fixed costs of domestic operations (FDI) are increasing (decreasing) in managerial ability.[24] In addition, as in Helpman et al. (2004), we assume that FDI is subject to higher fixed operating costs than domestic production, regardless of the ability of the manager guiding the firm: $f_I(a) > f_D(a)$, $\forall a$.

Shocks. The dynamics of the economy are driven by fluctuations in the aggregate consumption levels in the two countries. C and C^* are exogenously given and evolve according to:

$$\frac{dC}{C} = \mu dt + \sigma dz \tag{8}$$

$$\frac{dC^*}{C^*} = \mu^* dt + \sigma^* dz^*, \tag{9}$$

where $\mu, \mu^* \in \Re$, $\sigma, \sigma^* \in \Re_+$, $E(dz, dz^*) = \chi dt$, and $\chi \in [-1, 1]$ denotes the correlation between the two country-specific shocks. It follows that the stochastic discount factor is given by:[25]

$$\frac{dM}{M} = -r dt - \gamma \sigma dz, \tag{10}$$

with $r = \rho + \gamma\mu - \gamma(\gamma + 1)\frac{1}{2}\sigma^2$ denoting the risk-free rate.

Like in Fillat and Garetto (2015), fluctuations in aggregate consumption levels are the source

[22] Garetto et al. (2026) report that, in the period 1987-2011, 72% of the sales of affiliates of US MNEs are directed to the host market.

[23] As detailed in Section 2, only 6.64% of managers in the sample change firm, and the median number of managers that a firm has during its life in the sample is 1.

[24] The results of regression (2), shown in Table 3, imply that $f'_D(a) > 0$ and $f'_I(a) < f'_D(a)$. Requiring $f'_I(a) < 0$ is a stronger sufficient condition that is qualitatively consistent with the empirical results.

[25] The stochastic discount factor is equal to the agents' inter-temporal marginal rate of substitution. The marginal utility of consumption is: $M = e^{\rho t} C(t)^{-\gamma}$. By applying Ito's Lemma to M, one obtains equation (10).

of risk in the economy. The correlation of shocks across countries, χ, is a source of diversification potential for MNEs, while the fixed costs of FDI drive firms' operating leverage, as it will become clearer in Section 4.3. These two forces operate in opposite directions in determining firms' expected returns. On the one hand, diversification drives expected returns down. On the other hand, operating leverage results in higher risk and drives returns up, as we explain below.

Lastly, we assume that the fixed and sunk costs of production grow deterministically at the same rate as aggregate consumption:[26] $\frac{df_D}{f_D} = \mu dt$, $\frac{df_I}{f_I} = \mu^* dt$, and $\frac{dF}{F} = \mu^* dt$.

4.2 The Firm's Intertemporal Problem

A firm chooses its international status (domestic or multinational) to maximize the present discounted value of its profit flow, conditional on its productivity φ, manager ability a, and the realizations of the aggregate shocks C, C^*. We solve the firm problem conditional on managerial ability. In Section 4.4 we illustrate how firms' production and investment decisions influence the firm-manager matching process.

Let $\mathcal{V}(\varphi, a, C, C^*)$ denote the value of a firm with productivity φ and managerial ability a when the realization of the aggregate shock is (C, C^*). Similar to Melitz (2003), we assume that the firm takes decisions in the two markets independently, so that we can write the value function as:

$$\mathcal{V}(\varphi, a, C, C^*) = V_D(\varphi, a, C) + \max\{V_F^o(\varphi, a, C^*), V_F(\varphi, a, C^*)\} - S(\varphi, a, C_0, C_0^*), \tag{11}$$

where $V_D(\varphi, a, C)$ denotes the value of domestic activities, $V_F(\varphi, a, C^*)$ denotes the value of foreign activities for a firm which is currently a multinational, $V_F^o(\varphi, a, C^*)$ denotes the option value of foreign activities for a firm that doesn't currently operate in the foreign market, and $S(\varphi, a, C_0, C_0^*)$ is the expected value of manager compensation, which depends on the realization of the shocks at time 0 since the manager market clears at firm birth.

Bellman Equations. Next, we illustrate how each of the value functions in equation (11) can be written recursively in a Bellman equation. The value of domestic sales is given by current domestic profits plus the continuation value:

$$V_D(\varphi, a, C) = \pi(\varphi, a, C) M \Delta t + E[M \Delta t \cdot V_D(\varphi, a, C')], \tag{12}$$

where $\pi(\varphi, a, C) = \tilde{\pi}(\varphi, C) - f_D(a)$. All flows are discounted with the agents' stochastic discount factor M, and C' denotes the realization of the shock at a future time $t + \Delta t$.

A firm that currently operates only in its domestic market must choose whether to start oper-

[26] The assumption of growing fixed and sunk costs prevents that all firms become multinationals in the long-run.

ating in the foreign market as well or to continue selling only domestically. For a domestic firm, foreign sales are an option that the firm exercises if it decides to become a multinational.

$$V_F^o(\varphi, a, C^*) = \max\left\{E[M\Delta t \cdot V_F^o(\varphi, a, C^{*\prime})], V_F(\varphi, a, C^*) - F\right\}. \tag{13}$$

Once a firm becomes a multinational, the value of foreign sales is given by the current foreign profit flow plus the continuation value:

$$V_F(\varphi, a, C^*) = \pi^*(\varphi, a, C^*)M\Delta t + \left\{E[M\Delta t \cdot V_F(\varphi, a, C^{*\prime})]\right\} \tag{14}$$

where $\pi^*(\varphi, a, C) = \tilde{\pi}(\varphi, C^*) - f_I(a) = A^*(t)\varphi^{\eta-1}C^*(t)$ and aggregate variables are defined analogously as for the domestic market. For tractability, we assume that there is no endogenous exit from either the domestic or the foreign market.[27]

Value Functions. By using standard tools in the literature on investment under uncertainty (see Dixit and Pindyck, 1994), we can solve for the value functions in the continuation regions.

The value of domestic activities is given by the domestic profit flows, discounted by taking into account the evolution of the shock process and agents' risk aversion:

$$V_D(\varphi, a, C) = \frac{\tilde{\pi}(\varphi, C)}{r - \mu + \gamma\sigma^2} - \frac{f_D(a)}{r - \mu}. \tag{15}$$

The solution for the value of existing foreign activities is analogous:

$$V_F(\varphi, a, C^*) = \frac{\tilde{\pi}^*(\varphi, C^*)}{r - \mu^* + \gamma\chi\sigma\sigma^*} - \frac{f_I(a)}{r - \mu^*}, \tag{16}$$

Lastly, the option value of foreign activities is given by:

$$V_F^o(\varphi, a, C^*) = B^F(\varphi, a)C^{*\beta^*}, \tag{17}$$

where $B^F(\varphi, a)$ is the option value of becoming an MNE, and $\beta^* > 1$ is the positive root of the fundamental quadratic equation, $\frac{\sigma^{*2}}{2}\beta^{*2} + \left(\mu^* - \gamma\chi\sigma\sigma^* - \frac{\sigma^{*2}}{2}\right)\beta - r = 0$.

As is standard within this class of models, value functions are given by the sum of the present discounted value of profits plus the option value of additional activities that the firm can undertake: FDI in this case. Given our assumptions on the fixed costs functions, managerial ability decreases (increases) the value of domestic (foreign) sales, and so affects the option value of MNE expansion, as we clarify below.

[27] Introducing endogenous exit is conceptually straightforward and doesn't change the intuition of the model, but prevents us from deriving closed-form solutions for the value functions.

Policy Function. Becoming an MNE is a discrete choice. Hence, the policy function is a firm-specific threshold in the realization of the aggregate foreign composite shock that induces the firm to enter the foreign market. More precisely, a firm becomes an MNE when $C^* \geq \bar{C}^F(\varphi, a)$, where $\bar{C}^F(\varphi, a)$ is determined by value matching and smooth pasting conditions between $V_F^o(\cdot)$ and $V_F(\cdot)$:

$$\bar{C}^F(\varphi, a) = \left(\frac{\beta^*}{\beta^* - 1}\right)\left(\frac{f_I(a) + rF}{r - \mu^*}\right)\left(\frac{r - \mu^* + \gamma\chi\sigma\sigma^*}{A^*}\right)\varphi^{1-\eta}. \tag{18}$$

The MNE entry threshold is decreasing in firm productivity φ and in managerial ability a (since $f_I'(a) < 0$), indicating that more productive firms and firms with better managers need smaller positive demand shocks to enter foreign markets.

The value-matching and smooth-pasting conditions also deliver an expression for the option value of becoming an MNE, $B^F(\varphi, a)$:

$$B^F(\varphi, a) = \frac{1}{\beta^*}\left[\left(\frac{\beta^* - 1}{\beta^*}\right)\left(\frac{r - \mu^*}{f_I(a) + rF}\right)\right]^{\beta^* - 1}\left(\frac{A^*\varphi^{\eta-1}}{r - \mu^* + \gamma\chi\sigma\sigma^*}\right)^{\beta^*}. \tag{19}$$

The option value of multinational entry (19) is increasing in firm productivity φ and, importantly for the link between the model and our empirical analysis, is increasing in managerial ability a.

Details on the derivation of the results in this section are contained in Appendix C.

4.3 Stock Returns

We now derive the model's predictions for firm-level expected returns, one of the key objects of our empirical analysis. Aggregate risk in the model stems from fluctuations in consumption growth, which drive the stochastic discount factor. Expected excess returns are then determined by the covariance of firm value with the stochastic discount factor: firms whose value falls when the marginal utility of consumption is high earn higher returns in equilibrium as compensation for systematic risk.

The expected excess returns of a domestic firm and of a multinational firm can be written as:[28]

$$E[ret_D(\varphi, a, C, C^*)] - r = \frac{\gamma\sigma^2 C V_D'(\varphi, a, C) + \gamma\chi\sigma\sigma^* C^* V_F^{0\prime}(\varphi, a, C^*)}{\mathcal{V}_D(\varphi, a, C, C^*)} \tag{20}$$

$$E[ret_{MN}(\varphi, a, C, C^*)] - r = \frac{\gamma\sigma^2 C V_D'(\varphi, a, C,) + \gamma\chi\sigma\sigma^* C^* V_F'(\varphi, a, C^*)}{\mathcal{V}_{MN}(\varphi, a, C, C^*)}. \tag{21}$$

In a model without fixed costs or selection into multinational status, expected excess returns would equal $\gamma\sigma^2$ for all firms. In our model, two features generate cross-sectional differences in

[28] The derivation of equations (20)-(21) is contained in Appendix C.

returns. First, fixed costs create operating leverage on assets in place: firms with higher fixed costs are more exposed to aggregate shocks, since a given decline in revenues translates into a larger decline in profits. Because MNEs face both domestic fixed costs and the additional fixed costs of FDI, they are more exposed to aggregate risk and command higher returns than domestic firms. Second, selection into multinational status creates an asymmetry in how the value of foreign sales affects expected returns: through the option value $V_F^{0'}$ for domestic firms and through the value of foreign sales V_F' for MNEs.

The cross-country correlation of aggregate shocks χ determines the contribution of the foreign component to total risk. When shocks are independent across countries, $\chi = 0$, the foreign term vanishes from the numerator, and only the operating leverage channel remains as a source of cross-sectional differences in returns. When $\chi = 1$, foreign operations provide no diversification benefit, and when $\chi < 1$, there is a trade-off between diversification and exposure to foreign shocks.

Through its effect on fixed costs, managerial ability shapes the returns of firms with different multinational status asymmetrically. For domestic firms that may eventually enter foreign markets, higher managerial ability raises the option value of FDI through $B^F(\varphi, a)$, amplifying the covariance of firm value with the stochastic discount factor and generating higher expected returns — the forward-looking premium for future MNEs that we document in the data. For MNEs, higher managerial ability lowers the fixed cost $f_I(a)$, reducing operating leverage and lowering expected returns. The analytical results in Section 5 formalize these implications.

4.4 Firm-Manager Matching

Having described the elements of the model conditional on manager ability, we describe here the firm-manager matching process.

We model the manager hiring process with a competitive search framework with two-sided heterogeneity à la Shimer (2005). Every firm can hire one manager. To do so, firms post ability-contingent wage contracts at time 0. Managers observe the posted contracts and apply to a single firm. Firms that receive at least one application hire one of their applicants. We adopt the same assumptions as Shimer (2005) by modeling an "anonymous" manager labor market: compensation offers may be conditioned on manager type but not on manager identity, and in equilibrium, identical managers must use identical mixed strategies when deciding where to apply. Job applications are the realizations of these mixed strategies. The resulting randomness generates realistic coordination frictions in the matching process.

We assume that there is a number N of firm "productivity types," and that $N_f/N = 1$, so that there is a unit measure of firms for each productivity level $\varphi_n \in \{\varphi_1, ...\varphi_N\}$, with $\varphi_n < \varphi_{n+1}$ for all n. Consistent with our empirical analysis, we assume that there are two manager ability types,

a_L and a_H (low and high ability), with $a_L < a_H$. In addition, let μ_L and μ_H denote the masses of low- and high-ability managers, with $\mu_L + \mu_H = N_m$.

Let $S(\varphi, a, C_0, C_0^*)$ denote the manager compensation contract offered by a firm with productivity φ to a manager with ability a. Similarly, let $q(\varphi, a, C_0, C_0^*)$ denote the expected application queue that a firm with productivity φ receives from managers with ability a. Lastly, let $v(a, C_0, C_0^*)$ denote the outside value of a manager with ability a. Since these variables are determined at time 0, we omit the aggregate state of the economy (C_0, C_0^*) from the notation for the remainder of this section.

An equilibrium in the manager market is defined by a wage contract $S(\varphi, a)$, expected application queues $q(\varphi, a)$, and manager outside values $v(a)$ such that: i) firm profits are maximized, ii) managers' expected compensation is equal to their outside value, and iii) a resource constraint is satisfied (application probabilities implied by the expected queues sum up to one).

Shimer (2005) shows that $S(\varphi, a)$, $q(\varphi, a)$, and $v(a)$ are the solution of the following system of equations:

$$v(a_L) \geq e^{-q(\varphi_n,a_L)-q(\varphi_n,a_H)}\mathcal{V}(\varphi_n, a_L) \text{ and } q(\varphi_n, a_L) \geq 0 \ \forall \varphi_n \quad (22)$$

$$v(a_H) \geq e^{-q(\varphi_n,a_H)}\mathcal{V}(\varphi_n, a_H) - e^{-q(\varphi_n,a_H)}(1 - e^{-q(\varphi_n,a_L)})\mathcal{V}(\varphi_n, a_L) \text{ and } q(\varphi_n, a_H) \geq 0 \ \forall \varphi_n \quad (23)$$

$$\mu(a_L) = \sum_n q(\varphi_n, a_L) \quad (24)$$

$$\mu(a_M) = \sum_n q(\varphi_n, a_H) \quad (25)$$

$$S(\varphi_n, a_L) = \frac{q(\varphi_n, a_L)e^{-q(\varphi_n,a_L)}}{1 - e^{-q(\varphi_n,a_L)}}\mathcal{V}(\varphi_n, a_L) \ \forall \varphi_n \quad (26)$$

$$S(\varphi_n, a_H) = \frac{q(\varphi_n, a_H)e^{-q(\varphi_n,a_H)}}{1 - e^{-q(\varphi_n,a_H)}}[\mathcal{V}(\varphi_n, a_H) - \mathcal{V}(\varphi_n, a_L)(1 - e^{-q(\varphi_n,a_L)})] \ \forall \varphi_n. \quad (27)$$

Equations (22)-(27) define a system of $4N + 2$ equations in as many unknowns.

Since the value function $\mathcal{V}(\varphi, a, C_0, C_0^*)$ is supermodular in firm productivity φ and managerial ability a, the equilibrium assignment will exhibit imperfect positive assortative matching: on average, high-ability managers will be matched with high-productivity firms. The anonymity assumptions create a coordination friction that makes the assortative matching imperfect.

A testable implication of the model's compensation structure is that $S(\varphi, m)$ is positively correlated with firm productivity, and therefore with firm size and multinational status, as well as with measures of managerial ability. Appendix Figure B.1 and Table B.1 show support for these predictions.

5 Analytical Results: Managers, Firm Status, and Stock Returns

In this section, we present three propositions that spell out the theoretical relationship between managerial ability, multinational status, and expected stock returns, and provide an explanation linking the facts we have shown in Section 3.

Our first result speaks to the relationship between managerial ability and multinational entry.

Proposition 1. $\frac{\partial \bar{C}^F(\varphi, a)}{\partial a} \leq 0$. *Firms that are run by better managers are more likely to become MNEs.*

Proof: Proposition 1 follows by differentiating expression (18) with respect to a.

Since $f_I'(a) < 0$, firms with higher ability managers have lower costs of FDI, hence, keeping everything else equal, they need smaller positive shocks to enter foreign markets and are more likely to become MNEs. Assumptions based on our empirical evidence on fixed costs (Table 3) deliver the effect of managerial ability on firm selection into multinational status that we observe in the data (Table 2).

We now examine the effect of managerial ability on the expected stock returns of domestic and multinational firms, respectively.

Proposition 2. *If* $\beta^* \chi \sigma^* > \sigma$ *and* $f_D(a) \ll f_I(a)$, *then* $\frac{\partial E[ret_D(\varphi, a]}{\partial a} > 0$. *Domestic firms' risk premia depend positively on managerial ability.*

Proof: See Appendix C.

The value of the option to expand abroad rises in good times when entry is profitable and falls in bad times when entry is not. Better managers, by lowering the fixed costs of FDI, make this option both more valuable and more sensitive to aggregate consumption fluctuations: in bad times, firm value falls not only because current profits are lower, but also because the probability of exercising the option in the near future drops. Since in bad times, the stochastic discount factor is high, firms holding more valuable expansion options bear more systematic risk and command higher expected returns.[29]

We have shown that domestic firms run by higher ability managers are more likely to become MNEs (Proposition 1); hence, they are the "model equivalent" of future MNEs in the data. Proposition 2 shows that domestic firms run by higher ability managers have higher expected stock

[29] Equation (19) shows that the coefficient on the option-value term is decreasing in the fixed cost of entry, so that better managers raise the value of the option to expand. Because the option value scales with $C^{*\beta^*}$, firm value is convex in aggregate foreign consumption, and a larger $B^F(\varphi, a)$ raises the covariance of firm value with the stochastic discount factor and hence the firm's expected return.

returns. The two propositions together are then consistent with the future MNE premia shown in Table 4: future MNEs (in the model, domestic firms run by high ability managers that have high option values of FDI) have higher returns than firms that sell only and always in their domestic market.

The intuitive reason behind this result is that stockholders forecast the higher likelihood of multinational entry when a firm is run by a high ability manager. If foreign operations are perceived as risky, stockholders command higher returns to be compensated for that risk.

How does managerial ability affect the returns of multinational firms? Our last proposition answers this question.

Proposition 3. *If* $|f_I'(a)| > f_D'(a)$*, then* $\dfrac{\partial E[ret_{MN}(\varphi, a)]}{\partial a} < 0$*. MNEs' risk premia depend negatively on managerial ability.*

Proof: Proposition 3 follows by differentiating expression (21) with respect to a.

The effect of managers on current MNE premia depends on the relative effect of managerial ability on the fixed costs of domestic versus foreign operations. If the effect of managerial ability on the fixed cost of FDI dominates, MNEs' risk premia depend negatively on managerial ability, and managerial ability reduces the premium differential between MNEs and domestic firms.

The intuition behind this result is simple: higher fixed costs increase operating leverage, making assets in place riskier (the mechanism that Fillat and Garetto, 2015 use to explain the MNE premium). Managerial ability affects the fixed costs of firms. For MNEs, managerial ability increases (decreases) the fixed costs of domestic (foreign) operations, so the net effect on risk (and expected returns) depends on the net effect of managerial ability on total fixed costs.

6 Quantitative Analysis

We conclude the paper with a quantitative analysis whose goal is to examine the effect of market frictions on firm selection and aggregate financial market outcomes. We calibrate the model to match moments related to managerial characteristics, firm selection into FDI, and stock market variables. We then evaluate the effect of two counterfactuals: a tax on the foreign profits of MNEs, and a tax on CEO pay.

6.1 Calibration

The calibration of the model entails setting values for parameters related to preferences (the subjective discount factor ρ, the elasticity of substitution η, and the risk aversion coefficient γ), shocks

(the drifts μ, μ^*, standard deviations σ, σ^*, correlation coefficient χ, and initial values $C(0)$, $C^*(0)$), production technology (the parameters of the firm productivity distribution, $G(\varphi)$, the initial values of the fixed costs functions, $f_D(a)$ and $f_I(a)$, and of the sunk entry cost, F), and manager labor market (the mass of managers of each type, μ_L and μ_H). We take some of these parameters from the literature or from direct observations in the data, and we calibrate the others using the structure of the model.

External Calibration. For the calibration of the aggregate shock processes, we choose the Brownian motion parameters to be equal to the mean and standard deviation of aggregate GDP growth in the US and in an aggregate of countries representing the top destinations of US FDI. This procedure yields parameter values $\mu = 0.035$, $\mu^* = 0.049$, $\sigma = 0.04$ and $\sigma^* = 0.063$. To select a value for χ, we computed the correlation between the GDP growth rate in the US and in this aggregate of FDI destinations: $\chi = 0.936$.[30] We set the elasticity of substitution to $\eta = 5$, in line with estimates in the literature (e.g. Broda and Weinstein, 2006), and the risk aversion parameter to $\gamma = 4$, a standard value in the asset pricing literature (Hansen and Singleton, 1983; Epstein and Zin, 1991). The value of the subjective discount rate ρ needs to be such that the present discounted value of profits does not diverge: $r - \mu + \gamma\sigma^2 > 0$ and $r - \mu^* + \gamma\chi\sigma\sigma^* > 0$, where $r = \rho + \gamma\mu - \gamma(\gamma+1)\frac{\sigma^{*2}}{2}$. We set $\rho = 0.01$.[31] We assume that the distribution of firm productivity $G(\varphi)$ is Pareto with location parameter one and shape parameter $\vartheta = 4.25$, as calculated by Kondo et al. (2023) using Census data for US firms. We simulate the economy for $N = 1000$ firms. Table 6 summarizes the parameters we set directly from the data or from previous literature.

Table 6: Direct Calibration.

Parameter	Definition	Value	Source
μ, μ^*	drift of demand processes	0.035, 0.049	WDI
σ, σ^*	st. dev. of demand processes	0.04, 0.063	WDI
χ	correlation of demand processes	0.936	WDI
η	elasticity of substitution	5	Broda and Weinstein (2006)
γ	risk aversion coefficient	4	Hansen and Singleton (1983)
ρ	subjective discount factor	0.01	model restriction
ϑ	shape parameter of firm productivity distribution	4.25	Kondo et al. (2023)

Model-based Calibration. We set values for the remaining parameters using a procedure that identifies them jointly to match relevant moments from our data.

[30] We compute GDP growth rates by country from the World Development Indicators (WDI), series "GDP (constant 2015 US dollars)", for the time period 1993-2017. Garetto et al. (2026) report that the top destinations of US FDI for this time period are Brazil, Canada, China, France, Germany, Ireland, Japan, Mexico, Singapore, and the United Kingdom.

[31] The calibrated risk-free rate is higher than that observed in the data, reflecting the well-known risk-free rate puzzle (Weil, 1989). This arises because CRRA preferences do not separate intertemporal elasticity of substitution from risk aversion, hence do not provide sufficient flexibility to simultaneously match the equity premium and the level of the risk-free rate. In the model-based calibration, we target stock returns in excess of the risk-free rate.

Since we assume that there are two managerial ability levels, a_L and a_H, the initialization of the fixed costs functions only take values f_D^L, f_D^H, f_I^L, and f_I^H. As we do not have information on firm domestic entry and exit in the data, we assume that $f_D^L = f_D^H = 0$. As a result, the model-based calibration amounts to assigning values to 7 parameters: the mass of managers of each type, $\mu(a_H)$ and $\mu(a_L)$, the initialization of the fixed costs of FDI associated to each manager type, f_I^L, and f_I^H, of the sunk MNE entry cost F, and of the aggregate consumption processes C_0, C_0^*. We choose the following target moments: 1. the average share of MNEs in the sample, 2. the average stock returns of domestic firms in excess of the risk-free rate, 3. the average stock returns of MNEs in excess of the stock returns of domestic firms, 4. the average manager compensation differential between MNEs and domestic firms, 5. the average manager compensation ability premium, 6. the average manager compensation as a share of firm value, 7. the share of non-matched firms.

The average share of MNEs in the sample is 48.99%, much higher than in samples that are representative of the entire population of firms in a country, but in line with what reported by other papers using Compustat data. Average stock returns in excess of the risk-free rate for domestic firms are 1.24%, while MNEs exhibit an additional average stock return of 0.62%.[32] We use our data on managerial compensation to construct three additional moments: the MNE compensation premium, or the the average manager compensation differential between MNEs and domestic firms, equal to 58% in the data; the ability compensation premium, that we define as the average compensation differential between managers above and below median compensation, equal to 26% in the data; and managerial compensation as a share of firm value, equal to 0.02% in the data. In addition, we set as a target of the calibration a zero share of unmatched firms in the sample.

Our calibration procedure starts with a grid search to identify a good initial condition for the simulated method of moments procedure. We perform 500 simulations of an economy with 1000 firms and 300 periods, and select the parameter values that minimize the distance between model and data moments using the optimal weighting matrix. Table 7 shows the match between model and data moments, and Appendix Table B.2 shows the implied calibrated parameters.

The model matches exactly the share of MNEs in the data. Other moments are over-predicted, but capture the qualitative empirical patterns: MNEs have higher returns than domestic firms, CEO compensation is a small share of firm value, and there are significant compensation premia associated with multinational firms and high-ability CEOs. The large discrepancy between the model and data moments for the compensation premia may be due to our Pareto productivity distribution, which generates large firms that are "too large" compared to the data. Since all

[32]We compute excess returns by taking the average 3-month T-bill rate from 1990 to 2016, equal to 2.7%, as our measure of the risk free rate. The moments on excess returns are not directly comparable to the summary statistics reported in Table 1, where we construct three time-invariant portfolios of firms by international status (always domestic, new MNEs, always MNEs). The excess returns moments are computed taking the average across firms with the same international status in a given period, i.e., the portfolios are time-varying.

Table 7: Joint Calibration.

Moment Description	Data	Model
Share of MNEs	48.99	48.03
Excess Returns of D firms	1.24	2.45
Returns Spread of MNE over D firms	0.62	0.92
MNE Compensation Premium	58	156.80
Ability Compensation Premium	26	121.40
CEO Compensation over Firm Value	0.02	0.44
Share of non-matched Firms	0	4.80

Note. All values are expressed in percentages.

the moments are matched jointly, it is hard to talk about identification. However, numerical experiments show that the average share of MNEs and the average excess returns are helpful in identifying the initial levels of the fixed and sunk costs and consumption processes. Moments related to manager compensation are helpful in identifying the number of managers per type, $\mu(a_H)$ and $\mu(a_L)$. A large overall number of manager is needed to generate a share of non-matched firms that is close to zero, but it also modulates the magnitude of manager compensation as a share of firm value. In addition, there is a tradeoff generated by the relative sizes of $\mu(a_H)$ and $\mu(a_L)$: scarcity of high-ability managers increases the ability premium, but it also affects the MNE compensation premium through its role for selection.

We conclude this section by reporting additional features of the calibrated economy. As explained in Section 4.4, the model generates imperfect assortative matching between managers and firms. In the calibrated economy, 49.8% of the multinationals are run by high-ability managers, while almost all (99.8%) the domestic firms are run by low-ability managers. From the manager's perspective, about 99.6% of high-ability managers work in multinational firms, while only 68% of low-ability managers work in domestic firms. Consistent with Propositions 2-3, managerial ability has opposite effects on the returns of domestic versus multinational firms. In the model, domestic firms run by high-ability managers have excess returns that are 7% higher than domestic firms run by low-ability managers. Conversely, MNEs run by high-ability managers have excess returns that are 11% lower than MNEs run by low-ability managers.

6.2 Counterfactuals

We conclude our analysis with two counterfactual exercises whose goal is to examine the effect of market frictions on firm selection and aggregate financial market outcomes. First, we evaluate the effects of a policy that imposes a tax on MNEs' foreign profits. Second, we examine the effects of a policy that imposes a tax on the profits of firms with CEO compensation above a certain threshold.

6.2.1 Taxing MNE Profits

We examine the effects of a tax on the foreign profits of multinational corporations on firm selection, the distribution of managerial talent across firms, and financial market outcomes. Intuitively, taxing MNEs' profits reduces firms' incentives to enter foreign markets. In addition, by decreasing overall firm value, the tax affects the match between managers and firms, making it less likely that MNEs hire high ability managers. Since the tax affects both firm value and selection, its ex-ante effects on asset prices are ambiguous.

Figure 1 shows the effects of a 25% tax on foreign profits on firm selection and on the allocation of managerial talent across firms. In the counterfactual economy, the share of MNEs is lower than in the baseline (from 48.3% to 37.1%). Among the remaining MNEs, the share of high-ability managers increases (from 49.8% to 61.5%), reflecting tougher selection: the firms that remain multinationals despite the tax tend to be more productive and more likely to employ high-ability managers.

Table 8 decomposes the effects of the tax into three different channels. Column (1) reports the results of the baseline calibration; column (2) isolates the direct effect of the tax, keeping firm multinational status and CEO assignment fixed at the baseline levels; column (3) allows for endogenous multinational status; and column (4) allows for both endogenous multinational status and firm-CEO assignment. Panel A shows the effect of the policy on some of the moments targeted in the calibration. Panel B reports the joint distribution of manager-firm matches as a share of all firms, in contrast to the conditional shares shown in Figure 1. Panel C shows aggregate outcomes.

A tax on foreign profits drives a decrease in the share of multinational firms from 48.3% to 37.6%. In addition, hiring high-ability managers becomes relatively more costly, further reducing the share of MNEs to 37.1%. By decreasing firm profits, the direct effect of the tax is also to decrease manager compensation, so that both the MNE compensation premium and the ability compensation premium decrease. The direct negative effect on the MNE compensation premium is partially attenuated by endogenous selection into MNE status: since, on average, MNEs are more productive in the counterfactual than in the baseline economy, the MNE compensation premium is higher. Endogenous assignment further reduces the MNE compensation premium as it decreases MNEs' incentives to hire high ability managers. On the contrary, the endogenous assignment increases the ability compensation premium as the MNEs in the counterfactual economy, being on average more productive than in the baseline economy, hire on average more higher ability managers. Ultimately, CEO compensation declines more than firm value, so that the ratio of CEO compensation to firm value declines.

A tax on foreign profits reduces the expected returns of both MNEs and domestic firms, though the effect is larger for MNEs. For multinational firms, the tax directly reduces after-tax foreign

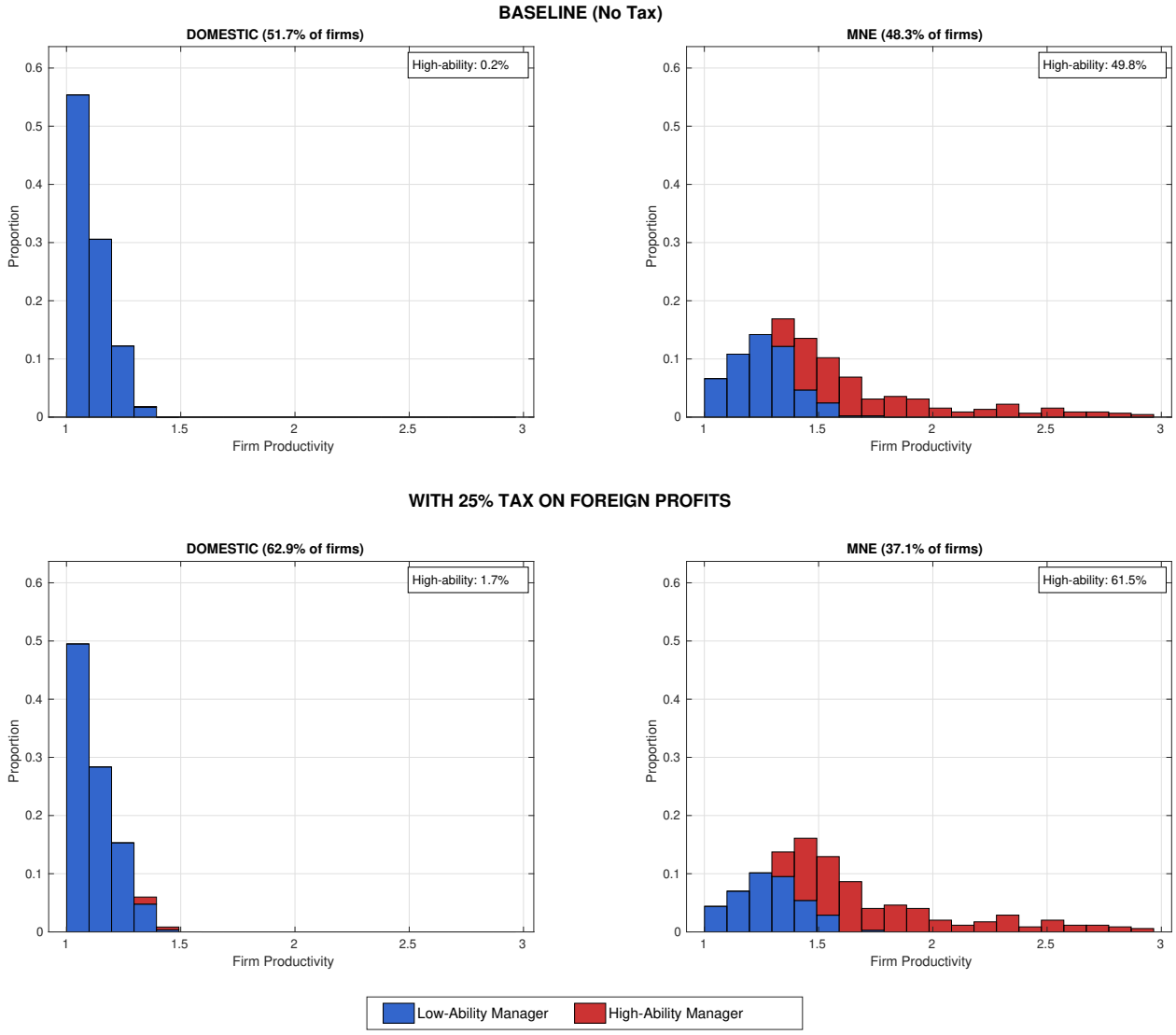

Figure 1: A 25% tax on foreign profits. The box labels report the share of high-ability managers among domestic and MNE firms, respectively.

profits, lowering both firm value and the covariance of cash flows with the stochastic discount factor. Because the domestic value component remains unchanged, the firm's portfolio of activities shifts toward the less risky domestic ones. Expected returns fall as investors require lower compensation for holding equity with reduced foreign risk exposure. Domestic firms are affected indirectly, through their option to become multinationals. The tax reduces the attractiveness of multinational status, lowering both the value of expansion and its sensitivity to foreign demand shocks. However, because the option value represents only a fraction of total domestic firm value, the reduction in expected returns is correspondingly smaller than for MNEs. These results show that the incidence of a tax on foreign profits affects all firms in the economy.

Table 8: Counterfactual Analysis: Effect of a Tax on Foreign Profits

	(1) Baseline	(2) Tax (No Adj.)	(3) Tax (Firm Adj.)	(4) Tax (Firm + CEO Adj.)
Manager Assignment	Endog.	Fixed	Fixed	Endog.
Firm MNE Status	Endog.	Fixed	Endog.	Endog.
Panel A: Targeted Moments				
MNE Share (%)	48.3	48.3	37.6	37.1
$E[R_D] - R_f$ (%)	2.45	2.13	2.24	2.24
$E[R_{MN}] - E[R_D]$ (%)	0.92	-1.34	0.07	0.67
MNE Compensation Premium (%)	156.8	106.5	124.1	117.4
Ability Compensation Premium (%)	121.4	67.1	67.1	72.8
CEO Compensation/ Firm Value (%)	0.44	0.52	0.39	0.37
Panel B: Manager-Firm Matches (% of total)				
Low × Domestic	51.6	51.6	61.3	61.8
Low × MNE	24.3	24.3	14.5	14.3
High × Domestic	0.1	0.1	1.1	1.1
High × MNE	24.1	24.1	23.1	22.8
Panel C: Aggregate Outcomes				
$E[R_m] - R_f$ (Value-weighted, %)	1.32	1.48	1.46	1.46
Δ Total Profits	1.000	0.730	0.735	0.734

Notes: Effect of a 25% tax on foreign profits. Column (1) is the baseline calibrated economy. Column (2) shows the direct effect of the tax, fixing both manager assignments and MNE status at the baseline values. Column (3) allows for changes to MNE status but keeps the CEO assignment fixed. Column (4) is the full equilibrium with endogenous selection into MNE status and firm-manager assignment.

The third panel of Table 8 shows the effects of the tax on aggregate outcomes. As expected, total firm profits decline. The aggregate value-weighted expected return (analogous to a market return) increases, as the firms in the counterfactual economy are, on average, more exposed to risk than in the baseline. This result is driven by different channels: as explained above, the tax makes MNE firms less risky, but the higher-productivity firms that remain MNEs have higher systematic risk exposure, and the value-weighted average reflects this compositional shift.

6.2.2 Taxing CEO Pay

Our second counterfactual exercise studies the effects of a tax on the profits of firms with executive compensation above a given threshold. To facilitate comparison with the tax on foreign profits, we calibrate the CEO pay tax rate so that its direct effect on aggregate firm value—holding MNE status and manager assignments fixed—equals that of the 25% foreign profits tax. This results in

a tax rate on profits of approximately 26% for firms whose CEO salary exceeds the median value in the baseline calibration.[33]

Figure 2 shows the effects of the CEO-pay-triggered tax on firm selection and on the allocation of managerial talent across firms. The tax reduces the incentive for firms to become MNEs, so that in the counterfactual economy, the share of MNEs is lower than in the baseline. The decline, however, is quantitatively smaller compared to the one caused by a tax on foreign profits. The share of high-ability managers slightly increases in both domestic firms and multinational corporations.

Firms respond to the CEO salary tax by adjusting their international footprint: marginal MNEs—particularly those with low-ability managers—remain domestic in the counterfactual, while MNEs with high-ability managers largely remain multinational. This composition effect increases the share of high-ability managers among MNEs from 49.8% to 54.7%. The remaining MNE pool becomes more selected, concentrating high-ability talent in fewer, more productive multinationals.

Table 9 decomposes the effects of the tax using the same structure as Table 8. Like the foreign profits tax, taxing the profits of firms with high CEO compensation reduces firms' incentives to become MNEs, decreasing the MNE share from 48.3% to 41.4%. Since, on average, MNEs pay higher CEO compensation, they are also more likely to be subject to the tax. Allowing for adjustments in the CEO labor market attenuates this effect, leading to a share of MNEs of 45.1%. Some firms can avoid the tax by both offering contracts with lower compensation and hiring lower-ability CEOs, so that compensation falls below the established threshold. This makes MNE status less costly for those firms. The tax has no direct effect on the MNE and ability compensation premia. Tougher selection into multinational status (column 3) increases the MNE compensation premium, but adjustments to the firm-CEO assignment (column 4) lead to a large decline in the MNE compensation premium, as MNEs hire more low-ability managers to reduce CEO pay and avoid the tax. The total effect of the tax is negative, from 156.8% to 137.7%. Meanwhile, the ability compensation premium rises from 121.4% to 132.9% due to adjustments to the firm-CEO assignment problem, as MNEs hiring high-ability managers are a smaller and more profitable group of firms compared to the baseline. The direct effect of the tax decreases firm value while leaving CEO compensation unchanged, so the ratio of CEO compensation to firm value increases from 0.44% to 0.51%. Allowing for adjustments to multinational status and firm-CEO assignment causes the ratio to decline to 0.46%, so the cumulative effect is small.

[33]Solving the model under a CEO pay tax entails a change to the problem of the firm. Whether a firm is subject to the tax depends on whether its CEO compensation exceeds the threshold, but CEO compensation itself is an equilibrium outcome of the firm-manager assignment problem, which needs to be solved jointly for all firms. If a firm's CEO compensation is above the median in the baseline calibration, when the tax is introduced, the firm has three options: not change its manager contract and pay the tax, not change its manager type but reduce compensation to avoid the tax, or change its manager type to lower compensation and avoid the tax. Each firm's decision will affect the decision that all other firms make, as equations (22)–(27) make explicit. We solve for the equilibrium by iterating between computing firm values given current tax assignments and updating tax status based on the resulting compensation schedule, continuing until the set of taxed firms converges.

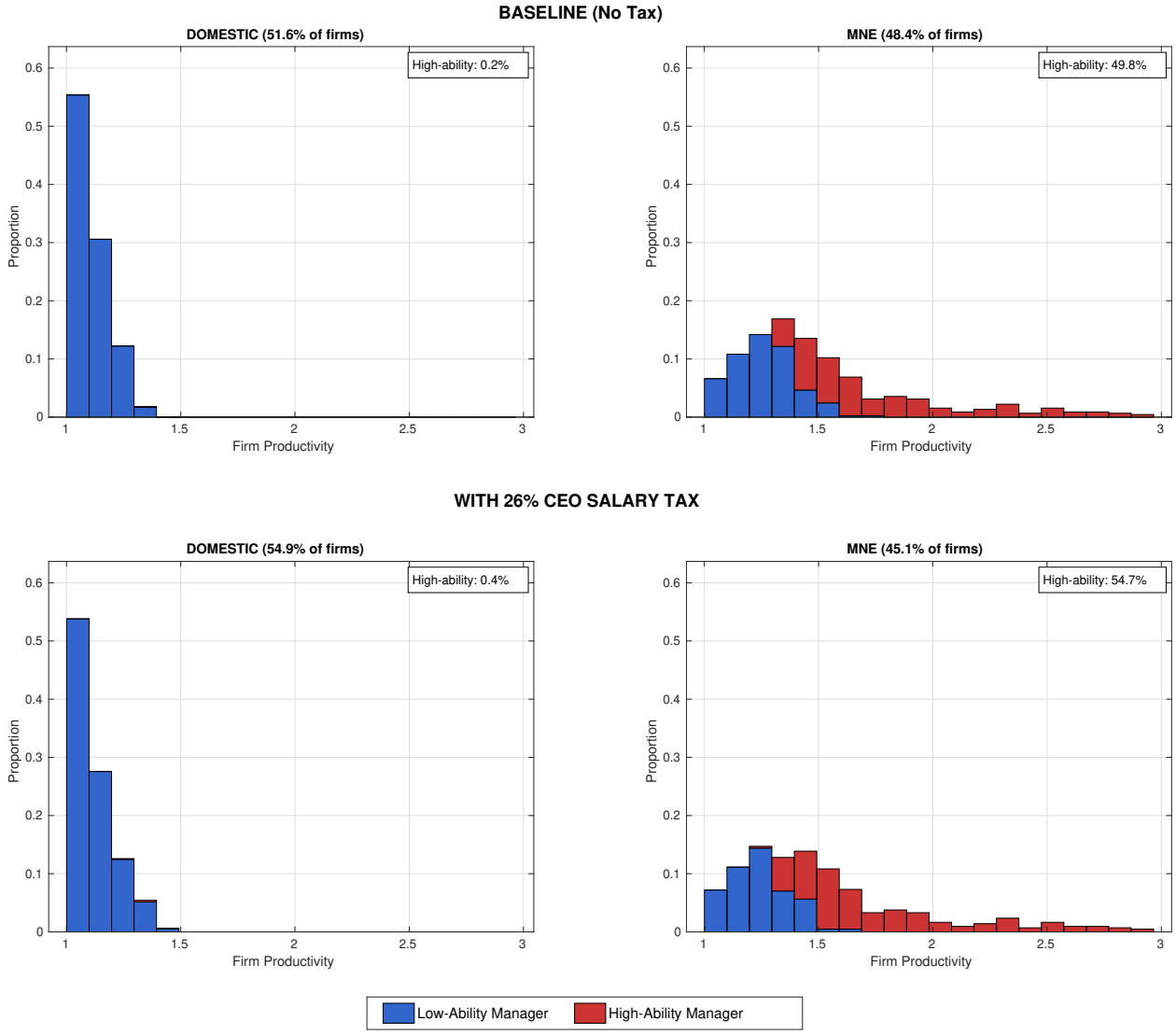

Figure 2: A 26% tax on profits for firms whose CEO salary exceeds the median value in the baseline calibration. The box labels report the share of high-ability managers among domestic and MNE firms, respectively.

Similar to a tax on foreign profits, a tax triggered by high CEO pay reduces the expected returns of multinational firms. Most domestic firms are unaffected, and their returns are virtually unchanged.

Lastly, this policy reduces total firm profits by an amount similar to the foreign profits tax. Both taxes function as taxes on MNE profits. However, the effect on the aggregate value-weighted expected returns moves in the opposite direction: it decreases from 1.32% to 1.22%, indicating that firms in the counterfactual economy are, on average, less exposed to systematic risk than in the baseline. This difference arises because the two taxes affect firms' selection along different margins.

Table 9: Counterfactual Analysis: Effects of a Tax on CEO Pay

	(1) Baseline	(2) Tax (No Adj.)	(3) Tax (Firm Adj.)	(4) Tax (Firm + CEO Adj.)
Manager Assignment	Endog.	Fixed	Fixed	Endog.
Firm MNE Status	Endog.	Fixed	Endog.	Endog.
Panel A: Targeted Moments				
MNE Share (%)	48.3	48.3	41.4	45.1
$E[R_D] - R_f$ (%)	2.45	2.45	2.49	2.46
$E[R_{MN}] - E[R_D]$ (%)	0.92	0.92	−0.19	0.13
MNE Compensation Premium (%)	156.8	156.8	161.1	137.7
Ability Compensation Premium (%)	121.4	121.4	121.4	132.9
CEO Compensation/ Firm Value (%)	0.44	0.51	0.48	0.46
Panel B: Manager-Firm Matches (% of total)				
Low × Domestic	51.6	51.6	58.3	54.6
Low × MNE	24.3	24.3	17.5	20.4
High × Domestic	0.1	0.1	0.3	0.2
High × MNE	24.1	24.1	23.9	24.7
Panel C: Aggregate Outcomes				
$[R_m] - R_f$ (Value-weighted, %)	1.32	1.22	1.21	1.22
Δ Total Profits	1.000	0.730	0.733	0.743

Notes: Effect of a 26% tax on profits for firms whose CEO compensation exceeds the median value in the baseline calibration. Column (1) is the baseline calibrated economy. Column (2) shows the direct effect of the tax, fixing both manager assignments and MNE status at the baseline values. Column (3) allows for changes to MNE status but keeps the CEO assignment fixed. Column (4) is the full equilibrium with endogenous selection into MNE status and firm-manager assignment.

The foreign profits tax selects on productivity: only the most productive firms can absorb the tax and remain profitable as MNEs, and these firms have the highest foreign risk exposure. In contrast, the CEO pay tax operates through the labor market for managers. In equilibrium, high-ability managers are valuable precisely because they lower the cost of foreign expansion, making the option to become an MNE more valuable. This benefit is largest for the most productive firms, those closest to the MNE entry threshold.[34] The CEO pay tax disrupts this equilibrium by making MNE status less attractive for firms with high-ability managers, since these managers command salaries above the tax threshold. Faced with the tax, some firms forego foreign entry, reducing the share of high-productivity, high-risk MNE firms. This selection effect dampens the positive

[34]The ability premium observed in the data reflects this sorting: high-ability managers earn more because they are matched with high-productivity firms that eventually become MNEs, not because they command higher wages at any given firm. This is consistent with the drivers of CEO pay at the top of the distribution in Gabaix and Landier (2008).

assortative matching that drives both the ability premium and the systematic risk exposure of MNEs.[35]

In summary, while taxes on foreign profits and taxes on firms with high CEO pay essentially target the same group of large multinational corporations, our analysis shows that the two types of taxes have different quantitative effects as they affect firms' adjustment margins differently.

7 Conclusions

Multinational corporations are the largest players in the global economy. In this paper, we offer some insight into the origin of the risks these firms are exposed to. As managers have an important role in the firms' decision making process, we focus on their role as drivers of firm expansion into foreign markets.

Our empirical analysis shows that management matters for firms' selection into multinational activity: firms run by managers with multinational expertise are more likely to become MNEs. In addition, current and future MNEs command a higher risk premium than domestic firms. We develop a simple dynamic model of manager choice and MNE entry that rationalizes these empirical findings. The main mechanism we propose links managers' ability to firms' expansion costs, the option value of expansion, and the exposure to risk of assets in place. The model makes transparent the channels linking these firms' decisions and highlights how managerial decisions play a fundamental role in the origins and dynamics of MNEs' risk premia.

The quantitative analysis suggests that policy distortions, in the form of taxes on firms' profits, have effects that go well beyond conventional wisdom once one considers the extensive margin of multinational activity and the endogeneity of a firm-manager match. Studies focusing only on the direct effects of profit taxation may produce largely misleading results. Our counterfactual analysis illustrates this point: while both a tax on foreign profits and a tax on CEO pay reduce MNE profits by similar amounts, the foreign profits tax causes a sharp contraction in FDI and concentrates risk among the surviving high-productivity multinationals, whereas the CEO pay tax has a more muted effect on FDI but reduces aggregate risk exposure by selectively reducing foreign entry among firms with high-paid managers.

[35] Our analysis complements recent work by Caselli (2025), who studies the macroeconomic implications of statutory CEO pay caps in a span-of-control economy à la Lucas (1978). His focus is on the aggregate efficiency-inequality tradeoff: pay caps reduce top income shares but also reduce output by distorting firms' labor demand. Our approach differs in two key respects. First, we model the tax as affecting firm profits rather than directly capping compensation. This approach is consistent with policies discussed in the US Congress and, importantly, allows the manager labor market to adjust endogenously through the competitive search mechanism. Second, and more substantively, we examine margins that are absent in a closed-economy framework: firms' decisions to expand internationally and the resulting implications for systematic risk exposure. These margins turn out to be quantitatively important—the tax affects aggregate returns not primarily through its direct effect on firm value, but through its indirect effect on which firms become multinationals and how managerial talent is allocated across them.

The relationship between management, firm expansion, and firm risk exposure presents other angles that deserve further investigation. Examining the dynamics of CEO turnover, for example, can allow us to quantify the costs of distortions to the market for managerial talent—not only through their effect on the initial assignment, as we study here, but also through their effect on the timing and efficiency of managerial reallocation over the firm's life cycle. We plan to pursue these avenues in future work.

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Appendix

A Instrumental Variable Approach

The results of Section 3 may be subject to endogeneity bias if firms planning to expand abroad systematically hire CEOs with MNE expertise. To address this concern, we exploit quasi-exogenous variation in CEO turnover arising from CEO deaths. We identify 81 active CEOs of Compustat firms who passed away during our sample period. The identifying assumption is that, conditional on observables, CEO deaths are uncorrelated with the firm's latent propensity to become multinational.

Table A.1: Exogenous variation in CEO and CEO expertise.

	First Stage		OLS	IV
	(1)	(2)	(3)	(4)
	$NewCEO_{i,t}$	$NewCEO_{i,t} \times A_{i,t}$	$M_{i,t}$	$M_{i,t}$
$CEODeath_{i,t-1}$	0.946***	-0.002		
	(0.027)	(0.003)		
$CEODeath_{i,t-1} \times A_{i,t-1}$	-0.004	-0.002		
	(0.015)	(0.002)		
$NewCEO_{i,t}$			-0.005	
			(0.009)	
$NewCEO_{i,t} \times A_{i,t}$			0.050***	
			(0.010)	
$\widehat{NewCEO}_{i,t}$				0.322***
				(0.095)
$\widehat{NewCEO_{i,t}} \times A_{i,t}$				69.898***
				(9.545)
Controls	Yes	Yes	Yes	Yes
Adjusted R^2	0.021	-0.017	0.208	0.210
Observations	48,793	48,793	48,793	48,793

Note: The dependent variable ΔM_{it} equals 1 if the firm becomes an MNE in t. The dummy $NewCEO_{t-1}$ equals 1 if the firm hires a new CEO in the previous 4 quarters. $A_{i,t-1}$ is the number of countries the CEO expanded into in the previous 4 quarters. $NewCEO_{t-1}$ and $NewCEO_{t-1} \times A_{i,t-1}$ are instrumented exploiting information on previous CEO death. The regressions include market capitalization, leverage ratio, sales per employee, capital per employee, and firm beta as controls, in addition to industry and time fixed effects.
Source: CRSP/Compustat, SEC 10K filings, Execucomp, Boardroom Alpha, Factiva.

We estimate:

$$\Delta M_{i,t} = \alpha + \beta_1 \widehat{NewCEO}_{i,t-1} + \beta_2 \widehat{NewCEO_{i,t-1}} \cdot A_{i,t-1} + \gamma X_{i,t} + \delta_{NAICS,t} + \varepsilon_{i,t} \qquad \text{(A.1)}$$

where $\Delta M_{i,t}$ equals one if firm i becomes a multinational in year t, $NewCEO_{i,t-1}$ indicates new CEO hiring in the previous four quarters, and $A_{i,t-1}$ measures CEO ability (number of countries entered at previous firms). We instrument $NewCEO_{i,t-1}$ and $NewCEO_{i,t-1} \cdot A_{i,t-1}$ using CEO death indicators and their interaction with the deceased CEO's ability. Controls and fixed effects are the same as in regression (1).

Table A.1 reports the results. Columns (1) and (2) show the first stage: CEO deaths strongly predict the arrival of a new CEO. However, the first stage for the interation term is rather weak. Column (3) reports the OLS estimate, and column (4) reports the IV second stage. The OLS results (column 3) indicate that new CEOs with high ability predict higher MNE entry probability. The IV results (column 4) are directionally correct, but coefficient magnitudes are difficult to interpret given the weak first stage.

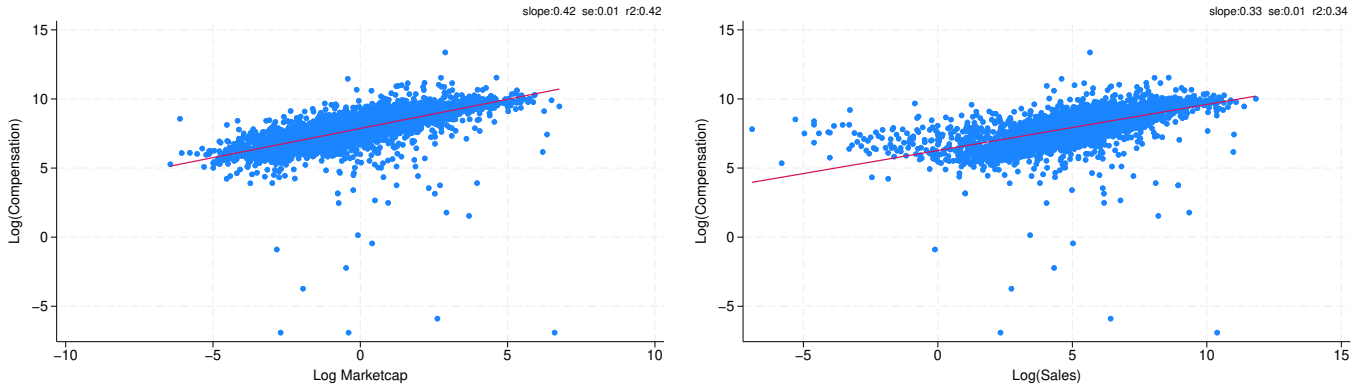
B Additional Tables and Figures

Table B.1: Manager Compensation, Expertise, and MN Status

	(1)	(2)	(3)	(4)	(5)	(6)
MNE	0.561***	0.064***	0.554***	0.063***	0.557***	0.064***
	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)
Previous MNE transition	0.246***	0.072**				
	(0.034)	(0.033)				
Previous work at MNE			0.325***	0.145***		
			(0.018)	(0.018)		
Number of country entries					0.024***	0.006***
					(0.001)	(0.001)
Industry-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes	No	Yes
Observations	112,105	111,948	112,105	111,948	112,105	111,948
R-squared	0.187	0.717	0.189	0.717	0.189	0.717

Note: The dependent variable is annual CEO compensation. Sample years 1993-2005. All specifications include controls (market capitalization, leverage ratio, sales per employee, capital per employee, and the firm *beta*) and industry-quarter fixed effects (full results available upon request). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Source: Execucomp, Boardroom Alpha, CRSP/Compustat, and SEC 10K filings.

Figure B.1: Manager Compensation and Firm Size



Note: Scatter plot of annual CEO compensation against measures of firm size: firm market capitalization in the left panel, and firm sales in the right panel. Year 2017.
Source: Execucomp, Boardroom Alpha, CRSP/Compustat.

Table B.2: Calibrated Parameters.

Parameter	Value
f_I^L	0.1026
f_I^H	0.0964
F	0.1
$\mu(a_H)$	1000
$\mu(a_L)$	3028
C_0	2103.35
C_0^*	4586.49

C Derivations and Proofs

C.1 Solution of the Value Functions and Policy Function

Domestic sales. The Bellman equation for the value of domestic sales in (12) can be written as:

$$\pi(\varphi, a, C)M\Delta t + E[d(M \cdot V_D(\varphi, aC')] = 0 \tag{C.2}$$

where it can be shown that:

$$E[d(M \cdot V_D] = Mdt\left[-rV_D + E\left(\frac{dV_D}{dt}\right) + E\left[\frac{dM}{M} \cdot \frac{dV_D}{dt}\right]\right] \tag{C.3}$$

where the dependence of the value function on (φ, a, C') is omitted to ease the notation. The Bellman equation can be rewritten as:

$$\pi(\varphi, a, C) - rV_D + E\left(\frac{dV_D}{dt}\right) + E\left[\frac{dM}{M} \cdot \frac{dV_D}{dt}\right] = 0. \tag{C.4}$$

Applying Ito's lemma and eliminating higher order terms, we obtain:

$$\frac{1}{2}\sigma^2 C^2 \frac{\partial^2 V_D}{\partial C^2} + (\mu - \gamma\sigma^2) C \frac{\partial V_D}{\partial C} + \mu \frac{\partial V_D}{\partial f_D} + \pi(\varphi, a, C) - rV_D = 0. \tag{C.5}$$

We guess that the solution of the value function takes the form:

$$V_D = B_1 C^{\beta_1} + B_2 C^{\beta_2} + B_3 C + B_4. \tag{C.6}$$

By the method of undetermined coefficients, β_1 and β_2 are the roots of: $\frac{1}{2}\sigma^2\beta^2 + (\mu - \frac{1}{2}\sigma^2 - \gamma\sigma^2)\beta - r = 0$, $B_3 = \frac{A\varphi^{\eta-1}}{r-\mu-\gamma\sigma^2}$, and $B_4 = -\frac{f_D}{r-\mu}$. In addition, it must be that $B_2 = 0$ in order for the value function to have a finite limit for $C \to 0$, and $B_1 = 0$ so that the value function is equal to the discounted value of profits for $C \to \infty$, leading to the value function in (15).

Foreign sales. By following an identical procedure to the one above, one can also show that the value function of foreign sales $V_F(\varphi, a, C^*)$ takes the form in equation (16).

To derive the value function of the option value of foreign sales, we start from evaluating the Bellman equation in the continuation region:

$$E[d(M \cdot V_F^o(\varphi, a, C^{*\prime})] = 0. \tag{C.7}$$

The option value does not include a profit term, so the solution of the value function takes the form:

$$V_F^o = B_1 C^{\beta_1} + B_2 C^{\beta_2}, \tag{C.8}$$

where it must be that $B_2 = 0$ in order for the value function to have a finite limit for $C \to 0$.

Policy Function. It remains to determine the expression for the option value term B_1, and the policy function, which takes the form of a firm-specific threshold $\bar{C^F}$ in the realization of the shock C^* such that a firm will decide to become an MNE for any realization of foreign demand $C^* > \bar{C^F}$. B_1 and $\bar{C^F}$ are the solutions of the system of value matching and smooth pasting conditions:

$$V_F^o(\varphi, a, C^*) = V_F(\varphi, a, C^*) - F \tag{C.9}$$

$$V_F^{o\prime}(\varphi, a, C^*) = V_F'(\varphi, a, C^*). \tag{C.10}$$

C.2 Derivation of Expected Returns

For a domestic firm, combining the no-arbitrage conditions for domestic and foreign sales:

$$\begin{aligned}\pi - rV_D - \gamma\sigma^2 CV_D' + E(dV_D) - rV_F^o - \gamma\chi\sigma\sigma^* C^* V_F^{o\prime} + E(dV_F^o) &= 0 \\ \pi + E(dV_D) + E(dV_F^o) &= rV_D + rV_F^o + \gamma\sigma^2 CV_D' + \gamma\chi\sigma\sigma^* C^* V_F^{o\prime} \\ \frac{E(\mathcal{V}_D) + \pi}{\mathcal{V}_D} &= \frac{r\mathcal{V}_D + \gamma\sigma^2 CV_D' + \gamma\chi\sigma\sigma^* C^* V_F^{o\prime}}{\mathcal{V}_D} \quad \text{(C.11)}\end{aligned}$$

where the left hand side of the equation is the definition of expected returns. Similarly one can show that the expected returns of a multinational firm are given by equation (21).

C.3 Proof of Proposition 2

The risk premia of domestic firms in equation (20) can be written as:

$$E[ret_D(\varphi, a, C, C^*)] - r = \frac{\gamma\sigma^2 \frac{A\varphi^{\eta-1}C}{r-\mu-\gamma\sigma^2} + \gamma\chi\sigma\sigma^*\beta^* B_F(\varphi, a) C^{*\beta^*}}{\mathcal{V}_D(\varphi, a, C, C^*)}. \quad \text{(C.12)}$$

The derivative of excess returns with respect to managerial ability is:

$$\begin{aligned}\frac{\partial E[ret_D(\varphi, a, C, C^*)] - r}{\partial a} = \frac{1}{\mathcal{V}_D(\varphi, a, C, C^*)^2} \Bigg\{ &\gamma\chi\sigma\sigma^*\beta^* C^{*\beta^*} \frac{\partial B_F(\varphi, a)}{\partial a} \cdot \left[\frac{A\varphi^{\eta-1}C}{r-\mu-\gamma\sigma^2} - \frac{f_D(a)}{r-\mu} + B_F(\varphi, a) C^{*\beta^*} \right] \\ &- \left(\gamma\sigma^2 \frac{A\varphi^{\eta-1}C}{r-\mu-\gamma\sigma^2} + \gamma\chi\sigma\sigma^*\beta^* B_F(\varphi, a) C^{*\beta^*} \right) \cdot \left(-\frac{1}{r-\mu} \frac{\partial f_D(a)}{\partial a} + \frac{\partial B_F(\varphi, a)}{\partial a} C^{*\beta^*} \right) \Bigg\}\end{aligned} \quad \text{(C.13)}$$

A restrictive sufficient condition to ensure that $\frac{\partial E[ret_D(\varphi,a,C,C^*)]-r}{\partial a} > 0$ is to impose that the fixed costs of domestic activities are zero: $f_D(a) = 0$, $\forall a$. For $f_D(a) > 0$, we need to show that the numerator of (C.13) is positive. We can re-write the numerator of (C.13) as:

$$\begin{aligned}&\frac{A\varphi^{\eta-1}C}{r-\mu-\gamma\sigma^2} \frac{\partial B_F(\varphi, a)}{\partial a} C^{*\beta^*} \cdot (\gamma\chi\sigma\sigma^*\beta^* - \gamma\sigma) + \gamma\sigma^2 \frac{A\varphi^{\eta-1}C}{r-\mu-\gamma\sigma^2} \cdot \frac{1}{r-\mu} \frac{\partial f_D(a)}{\partial a} + ... \\ &\qquad \gamma\chi\sigma\sigma^*\beta^* C^{*\beta^*} \cdot \frac{1}{r-\mu} \Big[B_F(\varphi, a) \cdot \frac{\partial f_D(a)}{\partial a} - \frac{\partial B_F(\varphi, a)}{\partial a} \cdot f_D(a) \Big]. \quad \text{(C.14)}\end{aligned}$$

Since $\frac{\partial B_F(\varphi,a)}{\partial a} > 0$ and $\frac{\partial f_D(a)}{\partial a} > 0$, under the assumption that $\beta^*\chi\sigma^* > 1$, the first two terms of (C.14) are positive. Hence a sufficient condition for $E[ret_D(\varphi, a, C, C^*)]$ to be increasing in a is: $\frac{\frac{\partial f_D(a)}{\partial a}}{f_D(a)} > \frac{\frac{\partial B_F(\varphi,a)}{\partial a}}{B_F(\varphi,a)}$., whose right-hand side can be written as $\frac{\frac{\partial B_F(\varphi,a)}{\partial a}}{B_F(\varphi,a)} = \left(\frac{1-\beta^*}{rF+f_I(a)}\right) \cdot \frac{\partial f_I(a)}{\partial a}$, so that

a sufficient condition for $E[ret_D(\varphi, a, C, C^*)]$ to be increasing in a is:

$$\frac{\frac{\partial f_D(a)}{\partial a}}{f_D(a)} > \left(\frac{1-\beta^*}{rF + f_I(a)}\right) \cdot \frac{\partial f_I(a)}{\partial a}. \tag{C.15}$$

Since $a \in \{a_L, a_H\}$, we impose a "discretized" version of (C.15):

$$\frac{f_D(a_H) - f_D(a_L)}{f_D(a_L)} > \frac{1-\beta^*}{rF + f_I(a_L)} \cdot [f_I(a_H) - f_I(a_L)]. \tag{C.16}$$

"On the Origins of the Multinational Premium", by J.L. Fillat and Stefania Garetto

Supplemental Appendix

I Data Assembly and 10-K Parsing Procedure

We download from the SEC Edgar's website all the 10-K filings for the universe of firms with publicly traded equity from 1993 through 2017. More recent filings have an *html* format, while older files are plain text. The structure for recent filings is such that an Exhibit 21 is submitted as a separate *html* file. Older text filings may have a separate Exhibit 21 *txt* file or include all the information in a unique 10-K file that contains the exhibit 21 information too. Figure I.1 shows the Exhibit 21 for a firm in our sample, McDonald's Corporation.

The 10-K filings are our main source of information for classifying firms as domestic or multinational in a given year. Our algorithm processes the different *html* and *txt* files separately. For *html* files, the code looks for the label *tables* inside the Exhibit 21 files and extracts the information on each subsidiary and location. For the text files, the algorithm reads each line of the file, looking for a structure containing names of subsidiaries, blank spaces, and locations. For the 10-K files that contain all the information in one file, the code reads each line of the file, looking for any country name from a dictionary. If no country name is found, the firm is defined as domestic. Of the remaining firms where a foreign country is mentioned, the algorithm looks for the structure of the name, blank spaces, and location to determine the multinational status. In addition, the algorithm searches for wording referring to "affiliate," "subsidiary," "subsidiaries," "plant," "foreign operations," or "21," in a window of 100 characters surrounding the mention of a foreign country in order for the firm to be classified as a multinational.

We use quarterly fundamentals from CRSP/Compustat Merged, a detailed database of standardized financial and market information for publicly traded firms provided by Wharton Research Data Services, for the sample firms present during the 1993–2017 period. The data we use range from financial fundamentals such as long-term debt; short-term debt; EBITDA; revenues; property, plant and equipment; and employment to market information such as monthly returns and market capitalization. The parsed SEC 10-K filings are merged onto the quarterly CRSP/Compustat data set based on the Central Index Key (CIK) to provide annual information on the multinational status of Compustat firms. Firms with missing 10-K filings at the start or end of the sample are imputed using the first or latest non-missing filing, respectively. For firms that contain short 10-K filing gaps (that, is domestic to missing to domestic or multinational to missing to multinational for one or two years), values are imputed as the status before and after the gap. For gaps where

the status changes following the gap, if the gap is greater than or equal to four quarters, we parse through the 10-K Exhibit 21s manually, imputing values that supersede the algorithm's output. For gaps shorter than four quarters, we leave it as is, and the missing status is considered within the year of the gap, with respect to firm categorization (described below). There are no attempts made to impute the multinational status for firms that are never captured in the algorithm unless that information was hand-collected at an earlier point in time. We compute the firm-level betas by running rolling one-year window regressions of monthly firm returns on the CRSP Total Market Index.

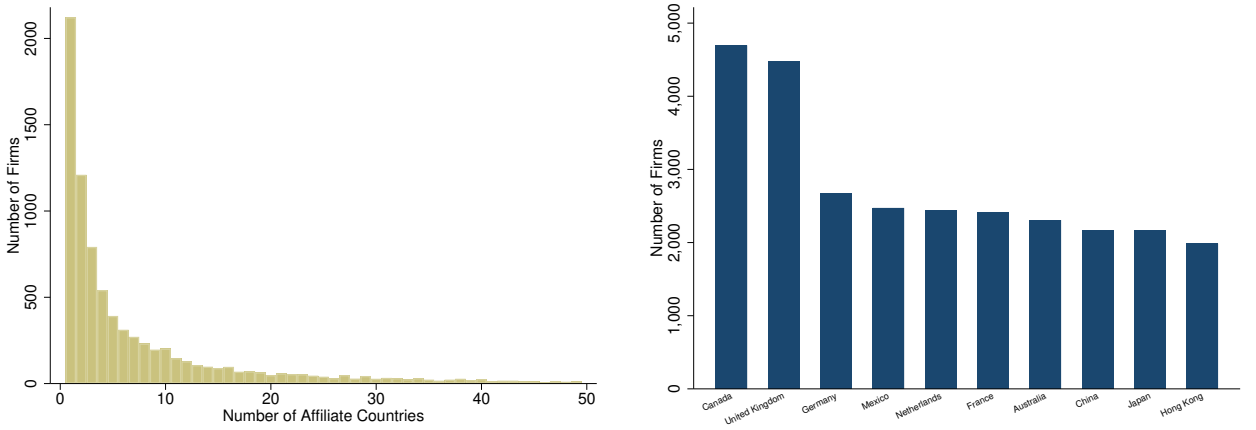
Thomson Reuters Mergers and Acquisitions Data provide deal-level M&A data for domestic firms from 1993 through 2017. Thomson Reuters M&A is an expansive platform for analyzing financial market, company fundamentals, and transaction deal data. We opt to exclude any deals that involve buybacks and recapitalizations to ensure we capture only proper acquisitions. Any deals that are related to territories of larger entities are re-categorized within the parent state. Data at the acquisition level are then merged back into the quarterly fundamentals using the historical CUSIP to record the number of acquisitions and the value of the deals, both domestic and foreign, within a given quarter. Foreign acquisitions that do not match with a change of multinational status in the firms' 10-K are checked by hand. If an acquirer shows no change in multinational status following the acquisition, the acquisition is removed.

We then categorize firms using the PERMCO, a unique permanent identifier for firms provided by CRSP/Compustat. Once domestic or multinational status is assigned to each firm in each quarter using 10-K information, firms are categorized into seven unique classifications based on characteristics the year of, the year before, and the year after the initial change into multinational status or the first foreign acquisition. Always domestic firms and always multinational firms are firms for which their status is domestic and multinational, respectively, throughout the entire sample period, with no foreign acquisitions or change of status. New MNE acquirers are firms that enter in the sample as domestic firms and we observe a foreign acquisition in Thomson Reuters M&A data within a year of the 10-K filings showing the existence of a foreign subsidiary. Additionally, we impute the status of new MNE acquirers following the first foreign acquisition as multinational if the foreign acquisition occurs prior to the indicated status change. New greenfield MNEs are firms that change their multinational status according to the 10-K filings but for which we do not identify a foreign acquisition in Thomson Reuters within the year before, of, and after the event. The set of *other firms* comprises firms that change from multinational to domestic or that change status several times in the sample, and also firms for which we do not observe a status change one year around a foreign acquisition. There are 6,155 firms in Compustat for which we are not able to parse 10-K information.

Figure I.1: Example of Exhibit 21: McDonald's Corporation

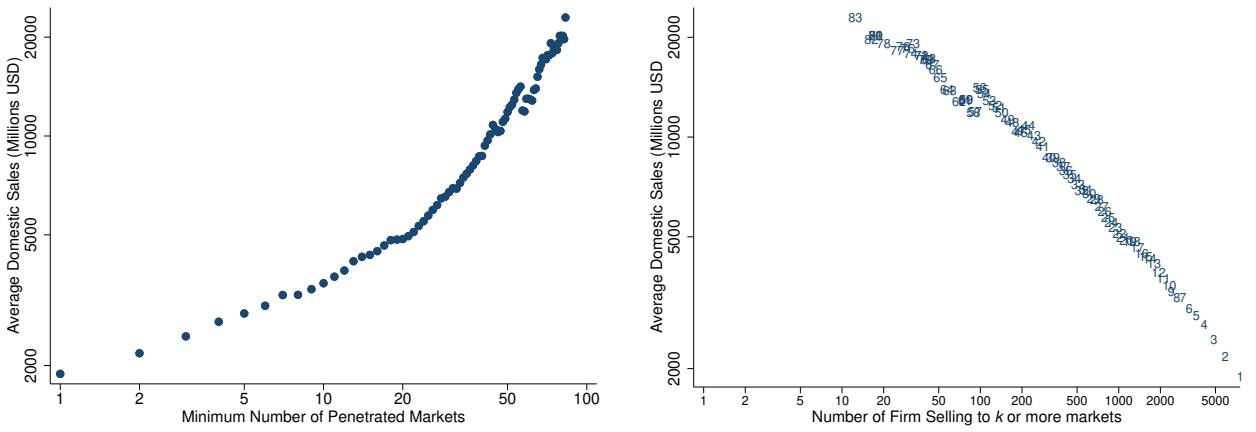
II Additional Tables and Figures

Figure II.1: MNE Affiliates' Host Countries



Note: The left panel shows the distribution of the number of firms having affiliates in n host countries. The right panel shows the number of firms having affiliates in the top 10 host countries.
Source: SEC 10-K filings.

Figure II.2: MNE Sorting by Size into Host Countries



Note: The left panel shows an increasing relationship between parent sales and the number of countries in which the firm has affiliates: Firms that are larger in the United States enter more markets. The right panel also shows that larger firms sell to less popular markets.
Source: SEC 10-K filings.

Table II.1: Becoming a Multinational: Management Matters.

	(1)	(2)	(3)	(4)
Previous MNE transition	0.052***			
	(0.013)			
Number of country entries		0.006***		
		(0.002)		
Previous work at MNE			0.034***	
			(0.006)	
Log-compensation				0.008***
				(0.001)
Market Capitalization	-0.023***	-0.022***	-0.021***	-0.029***
	(0.003)	(0.003)	(0.003)	(0.003)
Leverage Ratio	0.060***	0.060***	0.060***	0.062***
	(0.015)	(0.015)	(0.015)	(0.008)
Sales/Employee	-0.012	-0.012	-0.012	-0.458*
	(0.036)	(0.036)	(0.036)	(0.266)
Capital/Employee	-0.001	-0.001	-0.001	0.033*
	(0.003)	(0.003)	(0.003)	(0.020)
Beta (Annual)	0.021***	0.021***	0.021***	0.013***
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	133,519	133,519	133,519	111,428
Adjusted R-squared	0.701	0.701	0.701	0.719

Note: The dependent variable is a dummy taking a value of 1 if a firm is a multinational in quarter-year t. The variable "Previous MNE transition" takes the value of 1 if the manager has prior expertise in transitioning a firm from domestic to MNE. "Number of countries entries" denotes the natural log of 1 + the number of countries where previous MNEs established new affiliates under the manager's leadership. All specifications include market capitalization ($100 Billions), leverage ratio, sales per employee ($ 100 Billions / Thousand Employees), capital per employee ($ 100 Billions / Thousand Employees), and the firm *beta* as controls, and industry-quarter fixed effects. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: CRSP/Compustat, SEC 10-K filings, Execucomp, Boardroom Alpha.

Table II.2: Becoming a Multinational: Management Matters. Robustness.

	(1)	(2)	(3)	(4)
Market Capitalization	0.242***	-0.025***	0.023***	-0.013***
	(0.008)	(0.003)	(0.007)	(0.005)
Leverage Ratio	0.136***	0.062***	0.036**	0.058***
	(0.014)	(0.017)	(0.016)	(0.009)
Sales/Employee	-0.216**	-0.009	-0.045	-0.041*
	(0.106)	(0.035)	(0.035)	(0.023)
Capital/Employee	-0.013*	-0.002	-0.012	-0.003
	(0.007)	(0.003)	(0.009)	(0.003)
Beta (Annual)	0.121***	0.023***	0.028***	0.021***
	(0.003)	(0.002)	(0.002)	(0.002)
Firm FE	No	Yes	No	Yes
Executive FE	No	No	Yes	Yes
Observations	121,718	121,718	121,718	121,718
Adjusted R-squared	0.156	0.707	0.748	0.764
F-test FE		$p < 0.0001$	$p < 0.0001$	$p < 0.0001$

Note: The dependent variable is a dummy taking a value of 1 if a firm is a multinational in quarter-year t. Market capitalization is in \$100 Billions; Sales/Employee and Capital/Employee are in \$ Billions / Thousand Employees. *** p<0.01, ** p<0.05, * p<0.1. The comparison of the adjusted R^2 across columns (1)–(4) shows that manager fixed effects significantly contribute to explaining a firm's choice to engage in multinational activity, more than 4 percent beyond what firm characteristics and industry-time trends explain. Moreover, the addition of manager fixed effects has an incremental effect on the R^2 also when firm fixed effects are included. Source: CRSP/Compustat, SEC 10-K filings, Execucomp, Boardroom Alpha.

Table II.3: Becoming a Multinational: Good Management Matters

	(1)	(2)
Leverage Ratio	0.077***	0.077***
	(0.015)	(0.013)
Beta (Annual)	0.063***	0.059***
	(0.007)	(0.007)
Sales/Employee	0.000	0.000**
	(0.000)	(0.000)
Capital/Employee	-0.000***	-0.000***
	(0.000)	(0.000)
Market Capitalization	0.098***	0.149***
	(0.003)	(0.005)
Average Management Score (Filled)	0.057***	
	(0.006)	
Bad Management Score		-0.012
		(0.012)
Good Management Score		0.073***
		(0.009)
Observations	5,762	11,382

Note: Probit regression. The dependent variable is a dummy taking a value of 1 if a firm is a multinational in quarter-year t, scaled to 100 for interpretation purposes. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: CRSP/Compustat, Thomson Reuters M&A, SEC 10-K filings, World Management Survey.

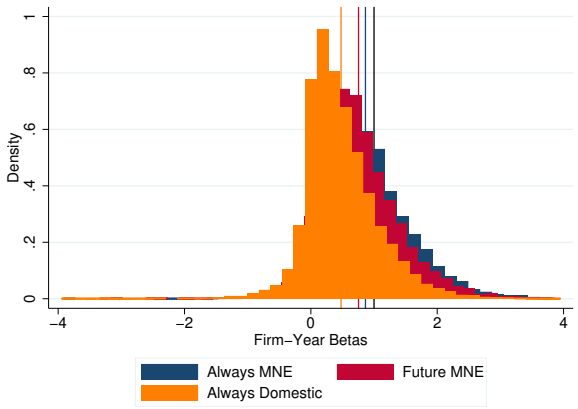


Figure II.3: Distribution of Firm *Betas*, by Firm International Status.

Note: Distribution of annual firm-level CAPM *betas*. The black line indicates a firm-year *beta* equal to one. The colored lines indicate the average *beta* of the respective subsample.

Table II.4: Manager Characteristics and Fixed costs

	(1)	(2)	(3)	(4)
Market Capitalization	0.027***	0.027***	0.027***	0.021***
	(0.001)	(0.001)	(0.001)	(0.001)
Leverage Ratio	0.984***	0.976***	0.979***	0.658***
	(0.115)	(0.114)	(0.115)	(0.014)
Sales/Employee	0.008***	0.008***	0.008***	-0.033**
	(0.002)	(0.002)	(0.002)	(0.017)
Capital/Employee	-0.012***	-0.012***	-0.012***	-0.020***
	(0.003)	(0.003)	(0.003)	(0.002)
Beta (Annual)	0.589***	0.586***	0.586***	0.158***
	(0.010)	(0.010)	(0.010)	(0.010)
MNE	1.183***	1.178***	1.176***	1.010***
	(0.015)	(0.015)	(0.015)	(0.157)
Previous MNE transition 0.239***				
	(0.086)			
MNE x Previous MNE transition	-0.096			
	(0.098)			
Number of country entries		0.389***		
		(0.030)		
MNE x Number of country entries		-0.138***		
		(0.031)		
Previous work at MNE			0.524***	
			(0.053)	
MNE x Previous work at MNE			-0.119**	
			(0.057)	
Log-compensation				0.612***
				(0.017)
MNE x Log(compensation)				-0.035*
				(0.020)
Observations	102,379	102,379	102,379	86,433
Adjusted R-squared	0.454	0.457	0.456	0.614
Controls	Yes	Yes	Yes	Yes
Industry-Quarter FE	Yes	Yes	Yes	Yes
Executive FE	No	No	No	No
Firm FE	No	No	No	No

Note: The dependent variable is firm-level fixed costs, measured as "Selling, General and Administrative Expense". The variable "Previous MNE transition" takes the value of 1 if the manager has prior expertise in guiding another firm's transition from domestic to MNE. "Number of countries entries" denotes the natural log of 1 + the number of countries where previous MNEs established new affiliates under the manager's leadership. Market capitalization is in $ Billions; Sales/Employee and Capital/Employee are in $ Billions / Thousand Employees. All specifications include industry-quarter fixed effects. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: CRSP/Compustat, SEC 10-K filings, Execucomp, Boardroom Alpha.

Table II.5: Stock Returns and Market *betas* of Current and Future MNEs.

	ret_{it}		$beta_{it}$	
	(1)	(2)	(3)	(4)
Current Multinationals	1.119***	0.949***	0.163***	0.134***
	(0.285)	(0.307)	(0.008)	(0.008)
Future Multinationals	1.570***	1.424***	0.118***	0.080***
	(0.328)	(0.353)	(0.009)	(0.009)
Market Capitalization	1.442***	1.419***	0.127***	0.124***
	(0.114)	(0.117)	(0.003)	(0.003)
Leverage Ratio	-1.043***	-0.735**	-0.274***	-0.337***
	(0.312)	(0.367)	(0.039)	(0.010)
Sales/Employee	0.725**	1.630*	-0.007	-0.034
	(0.299)	(0.910)	(0.006)	(0.024)
Capital/Employee	-0.053***	-0.093**	-0.001	0.001
	(0.019)	(0.041)	(0.000)	(0.001)
Beta (Annual)	0.208	0.188		
	(0.246)	(0.260)		
Constant	1.217***	1.284***	0.561***	0.600***
	(0.242)	(0.289)	(0.006)	(0.006)
Observations	30,992	28,885	30,992	28,885
Adjusted R-squared	0.059	0.056	0.243	0.245
Executive FE	No	No	No	No
Firm FE	No	No	No	No
Current minus Future MNE p-Val	.157	.139	0	0
PSM	No	Yes	No	Yes

Note: The dependent variable y_{it} is annual firm-level stock returns (columns 1-2) or firm-level annual market betas (columns 3-4). Market capitalization is in $ Billions; Sales/Employee and Capital/Employee are in ($ Billions / Thousand Employees). All specifications include industry-year fixed effects. The sample excludes "Other MNEs" or firms that enter the sample period as MNEs and later switch to only domestic operations. Columns 2 and 4 feature a propensity score-weighted control group. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: CRSP/Compustat and SEC 10-K filings.