The Multinational Return Premium: Investor's Perspective

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JEL Classification: G11, G12, G15

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Abstract

Previous research proposes various hypotheses on return differences between multinational companies and domestic companies. Using monthly returns of 18,796 U.S. stocks over 1973-2013 and 22,762 stocks in 22 countries over 1990-2013, we find that multinational companies earn significantly higher returns than domestic companies by 27bps per month. We further investigate whether the return difference is driven by risk or known asset pricing anomalies, and find that none of them can fully explain the return premiums of multinationals.

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Introduction

As labor, production, and sales markets are being globalized, international business activities of corporations have grown dramatically over the past decades. In the case of the U.S., between 1973 and 2013, the fraction of U.S. public firms that have foreign operations had increased from 21% to 53%. From the firm's perspective, it is clearly an important step to decide whether to expand operations internationally or stay domestic, because this decision necessarily affects various aspects of future cash flows and risk exposures of the company. On the other hand, investors, as another important participant in the financial markets who provide capital to companies, focus more on the returns of their investments on the firms. Do multinational companies have higher or lower returns than domestic companies, and therefore are multinational companies more or less attractive to investors? There is no clear evidence on how international activities of firms are recognized by investors in financial markets, and this is the main topic of our study.

Following Pinkowitz, Stulz and Williamson (2012), we define multinational companies (hereafter MNCs) as firms with significant operations outside their home countries, and domestic companies (hereafter DCs) as firms with most of operations concentrated in domestic markets. Do international activities of firms matter for investors in terms of stock returns? Based on previous literature, we collect two sets of hypotheses on how MNCs and DCs would differ in their returns.

The first set of research predicts that MNCs would earn lower returns than DCs, which we call the "MNC return discount" hypothesis. Corporate diversification literature argue that because of lower volatility of cash flows, diversified firms such as MNCs have lower default risk, higher debt capacity, and more active internal capital markets across divisions than focused firms such as DCs. Therefore, as in the spirit of Stein (2003), this financial impact of corporation diversification implies that MNCs should have lower cost of capital than DCs. Meanwhile, based on the internalization theory, Morck and Yeung (1992) find that firms with more intangible assets such as R&D are more likely to have foreign operations. According to Chan, Lakonishok, and Sougiannis (2001), stock markets do not revise pessimistic expectation on firms with high R&D promptly, because they tend to be past losers. Therefore, higher intangible assets of MNCs imply that MNCs would have lower returns than DCs. In addition, data shows that MNCs appear more in concentrated industries, and according to Hou and Robinson (2006), firms in concentrated

industries are traded at discount. Finally, early studies including Errunza and Senbet (1981, 1984) advocate that in imperfect capital markets, investors can diversify their portfolios internationally by holding multinational firms, enhancing stock price of multinational firms. Therefore, they argue that MNCs are traded at higher prices compared to DCs, and hence lower returns.

The second set of studies takes the opposite position and supports the "MNC return premium" hypothesis that MNC returns would be higher than DC returns. The main argument is that operations in foreign countries incur additional risks that DCs do not have to bear with, and thus MNCs should have higher returns to compensate for the higher risk exposures. One of the top considerations is currency risk. Jorion (1990) states that MNCs have higher currency risk exposures, and thus higher returns, which is also advocated in Griffin and Stulz (2001). A recent paper by Fillat and Garetto (2015) argue that MNCs are more exposed to negative shocks in foreign countries, because they have to pay high sunk costs when entering foreign countries and hence reluctant to withdraw. Meanwhile, it is possible that with foreign operations in multiple countries, MNCs might have more complicated structure than DCs. According to Zhang (2006) and Cohen and Lou (2012), investors demand premium for diversified firms because of complexity in information processing. Finally, the MNC return premium can be related to two empirical asset pricing anomalies: the idiosyncratic volatility puzzle and the profitability puzzle. As in Ang et al. (2006), firms with high idiosyncratic volatility tend to have lower returns in the future. Because of the diversification effects in MNCs, DCs might have higher idiosyncratic risk than MNCs, and thus might have lower returns. Data also show that the MNCs are more profitable than DCs, which implies that MNCs should have higher returns than DCs according to the profitability puzzle in Novy-Marx (2013).

To test the above hypothesis on the return difference between MNCs and DCs, we first examine the U.S. sample over 1973-2013. We document a strong pattern that the monthly returns of MNCs are significantly higher than that of DCs by 27bps per month, after controlling for size, value, momentum, and betas on Fama-French three factors and foreign exchange factor. The MNC return premium is robust across firm size groups, in different time periods, and in most industries using both cross-sectional and time-series tests. When we extend our sample to 22,762 stocks in 22 developed countries over 1990-2013, the same pattern persists, especially in G7 countries.

Why would MNCs have higher returns than DCs? Based on previously mentioned hypothesis, we identify a list of candidate variables that possibly explain the return difference between MNCs and DCs. Those candidates include risk exposures, idiosyncratic volatility, skewness, default risk, profitability, asset growth, industrial diversification, industry concentration, and foreign institutional ownership. However, after we control for all of those return determinants, the MNC return premium remains large and significant. Interestingly, we find that both idiosyncratic volatility and profitability significantly interact with MNC return premium, but neither can diminish the significance of MNC return premium.

Our paper is naturally related to the international corporate diversification literature, which focus on the valuation effect of corporate international diversification with a view from corporations. Previous studies evaluate the costs and benefits of international corporate diversification and discuss what the optimal choice of geographical structure is for a firm to maximize its overall firm value. The usual empirical approach is to compare the Tobin's Q of a multinational firm, relative to that of a portfolio of comparable domestic firms operating in the same foreign countries of each foreign segment of the MNC. For example, Denis, Denis and Yost (2002) and Fauver, Houston, and Naranjo (2004) show empirically that firms' international diversification decisions are associated with lower Qs, or the so-called "international diversification discount."[1]

Our study is different from most of the papers in the international corporate diversification literature, and thus makes additional contributions. We take a new perspective from the investors and answer a related but different question: for a typical investor in the global capital market, everything else equal, should she choose to invest in multinational firms or purely domestic firms, using the publicly available information on the firms' decisions that have already made on whether to be multinationals or domestic? Assuming that this "typical investor" is an outsider of the firm, she probably would care more about the stock returns of MNCs and DCs, rather than how firms make international diversification decisions. The Tobin's Q measure is reasonable to test whether combining different foreign segments within a firm's boundary creates or destroys the overall firm

[1] Actually, the evidence of corporate international diversification discount is not conclusive. Creal et al. (2014) finds that multinational firms are traded at a premium, rather than a discount, when using a different benchmark. Hund, Munk and Dice (2015) argue that the existence of diversification discount heavily depends on the benchmark and methodology.

value, but this is not the adequate measure for the purpose of this paper. Our results clearly show that in the main developed countries including the U.S., MNCs deliver higher returns than DCs for the past 40 years. After we examine all existing hypotheses, none of them can fully explain the magnitude of the MNC return premium we observe. Therefore, we make distinct and significant contributions to the literature by documenting that the existence of foreign operations is valuable information for investors.

The remainder of the paper is organized as follows. Section I provides a comprehensive literature review on how MNCs and DCs might have different returns. Section II describes our data sample and reports summary statistics. Section III and IV present our main empirical results for the U.S, and the global sample, respectively. Section V concludes.

I. Literature Review and Hypothesis

The theoretical and empirical evidence on the factors that affect firms' international diversification decisions provides implications on how these factors can possibly lead to return differences between MNCs and DCs. In this section, we review related studies and categorize them into two hypotheses: one predicting a MNC return discount, and the other predicting a MNC return premium.

A. MNC Return Discount

We start from the corporate diversification studies. Because multinational firms diversify their operations "geographically", MNCs have lower volatilities of cash flows than DCs, which result in lower default risks and more positively skewed cash flow distributions. Therefore, MNC has a put option like feature especially in economic downturn. Lower default risk of MNCs implies lower returns compared to DCs. For example, Vassalou and Xing (2004) and Chava and Purnanandam (2010) both find a positive cross-sectional relationship between stock returns and default risks.

Because of lower volatility in cash flows, MNCs also enjoy financial advantage in both internal and external capital markets (see Stein (2003) for a review). MNCs can allocate capital across different divisions through internal capital markets when one of the subsidiaries performs poorly. In addition, a lower default probability increases overall debt capacity and lowers cost of

debt in external capital markets, according to Reeb et al. (2001). With better access to internal and external capital markets, MNCs are less financially constrained than DCs. Lamont et al. (2001) and Whited and Wu (2006) argue that the extent to which firms are financial constrained is negatively priced in stock returns, because financially constrained firms are more subject to common shocks such as credit crunch or liquidity shock. Therefore, we expect to observe lower returns for MNCs, which are less financially constrained, compared to DCs.

Early studies in international economics document that the intensity of international activity of firms is industry-specific. In particular, empirical evidence shows that MNCs are in highly concentrated industries, whereas DCs are in more competitive industries (e.g. Antràs and Yeaple (2013)). Hou and Robinson (2006) argue that firms in concentrated industries earn lower returns than firms in competitive industries, because higher entry barriers in concentrated industries decrease the probability of default of firms in those industries. The lower competitiveness of industry characteristics of MNCs implies that MNCs would be traded at a discount compared to DCs.

The internalization theory says that firms have an incentive to expand their operations abroad when they have substantial amount of proprietary assets such as R&D. As these intangible assets have public good features, the value of firm increases by exploiting these assets in broader markets. Consistently, Morck and Yeung (1992) find that the values of MNCs are positively associated with firms' spending on R&D and advertisements. From an asset pricing perspective, higher intangible assets of MNCs have implications on stock returns. According to Chan, Lakonishock, and Sougiannis (2001), the market does not promptly revise their pessimistic expectation on firms with higher R&D. Therefore, MNCs' long-term investment on intangible assets would be associated with lower returns relatively to DCs.

Finally, exposures of firms' operations to various foreign country risks can affect the base of investors who are willing to provide capital to the companies. Focusing on investors' portfolio diversification choice, early studies, such as Errunza and Senbet (1981, 1984), argue that investors can indirectly diversify their portfolios internationally by adding MNC stocks instead of individual foreign stocks. This argument assumes that capital markets are not perfectly integrated, and there is a friction in terms of information asymmetry and transaction costs when purchasing foreign stocks. In this imperfect global capital markets, if marginal investors are domestic investors who

prefer MNCs, then they would highly value MNCs. Thus, we expect higher prices and lower returns for MNCs.

B. MNC Return Premium

The first rationale of MNCs having higher returns is higher risk exposures of MNCs, especially for their foreign operations. For instance, given that MNCs normally generate cash flows in different currencies abroad, MNCs are likely to have higher foreign exchange rate risk exposures than DCs. As a result, investors may require rewards for bearing the exchange rate risk. Previous papers, such as Jorion (1990) and Griffin and Stulz (2001), find consistent evidence that the exposure to the currency risks is priced in returns. Therefore, we expect that MNCs have higher foreign exchange betas, and thus higher returns. In addition to the foreign currency risks, firms going abroad may also face political risks or cultural difference risks, which may result in higher costs of their operations, as indicated in Adler and Dumas (1975) and Reeb, Kwok, and Baek (1998). A recent paper by Fillat and Garetto (2015) develops a real option value model, and explain that by investing outside of the home country, MNCs are reluctant to forgo high sunk cost to operate overseas, which makes MNCs more exposed to negative shocks in foreign markets. With higher risk exposures, MNCs hence should have higher returns than DCs.

The transaction cost theory in international economics emphasizes production efficiency as a main motivation of foreign direct investment, as in Caves (1971), Dunning (1973), Vernon (1979), Buckley (1988), and Kogut and Zander (1993). The argument is that cross-border expansion occurs when a firm can attain lower costs or higher productivity by directly owning foreign operations than by importing/exporting to foreign markets (Hennart (1982)). Therefore, MNCs tend to be more productive and efficient compared to DCs, according to Fishwick (1982). A recent paper by Novy-Marx (2013) documents that profitable firms generate significantly higher returns than unprofitable firms. In this sense, we expect that the higher profitability of MNCs could result in higher future returns compared to DCs.

As MNCs operate in different countries with different regulations or legal treatments, firms become more complex in terms of an organizational structure. Although MNCs have different operations across countries through multiple foreign subsidiaries, they usually report consolidated financial statements and aggregated business information. Hence, investors might not have enough

information on each subsidiary's operation of MNCs in detail from public sources. It becomes more of an issue when there are intensive transfers in resources and capital across foreign subsidiaries. Because of this complexity of business, it might be difficult for investors to evaluate the future prospects of their business or to incorporate any industry-specific or country-specific news to stock prices. Therefore, investors would require higher returns for holding MNC stocks to compensate for bearing the information uncertainty or slower information disseminations, as documented in Zhang (2006) and Cohen and Lou (2012).

Lastly, home bias literature provides a prediction on how domestic investors recognize MNCs differently from DCs. Domestic investors prefer to invest disproportionally more in domestic stocks rather than diversifying their portfolios internationally, which is so called the "home bias" puzzle as in French and Poterba (1991), while foreign investors show a preference for multinational stocks as in Dahlquist and Robertsson (2001). Previous papers try to explain the home bias puzzle based on an information story: home investors have superior access to information about domestic firms and economic conditions for domestic markets. If domestic investors determine the prices at the margin and if they have superior information about DCs than about MNCs, they are willing to hold DCs despite their low average returns. Therefore, we would expect to see the return premium for MNCs.

C. Summary and Research questions

The following table summarizes previous studies and their implications for return differences between MNCs and DCs.

Hypothesis on MNC Return Discount	**Studies**
1) Diversification effect: lower cash flow volatility, lower default risks	Stein (2003)
2) Access to internal and external capital markets; less financially constrained	Reeb et al. (2001)
3) Operate in concentrated industry	Hou and Robinson (2006)
4) Exploiting proprietary assets: more intangible assets such as R&D and advertisement	Morck and Yeung (1992), Chan, Lakonishok, and Sougiannis (2001)
5) Attract domestic investors who want to diversify their portfolios internationally	Errunza and Senbet (1981, 1984)

Hypothesis on MNC Return Premium	Studies
1) Exposure to higher risks related to foreign operations: foreign exchange rate risk, political risk, cultural risk	Fillat and Garetto (2015), Jorion (1990), Griffin and Stulz (2001), Choi and Jiang (2009), Bartov et al. (1996)
2) More productive and profitable	Fishwick (1982), Novy-Marx (2013)
3) Complex organizational structure: low information accessibility	Zhang (2006), Cohen and Lou (2012)
4) Attract foreign investors who have better knowledge on foreign markets	Coval and Moskowitz (1999), French and Poterba (1991)

Based on the previous review, we form three research questions regarding returns of MNCs and DCs. First, do MNCs differ from DCs in terms of stock returns? Second, is MNC return premium/discount robust to known risk properties and characteristics? Third, why are MNCs' returns different from those of DCs?

II. U.S. Data and Summary Statistics

A. Data Sources

Our U.S. sample includes U.S. publicly traded firms listed in New York Stock Exchange, American Stock Exchange, and NASDAQ, excluding firms incorporated outside the U.S. We include ordinary common shares only and exclude ADRs. The monthly return data are obtained from CRSP and accounting data from Compustat. Our sample period begins in January 1973 and ends in December 2013. We apply the following additional filters to the data: we require firms to have positive total assets and non-missing total income at the end of the previous fiscal-year end; market value of equity is more than $1 million; book value of equity is positive; monthly return is between -100% and 1,000%; and B/M ratio is not in the top or bottom 1% in the country.

B. Main Variables

Following Pinkowitz, Stulz and Williamson (2012), we classify firms into MNC and DC based on the information on foreign income and foreign income taxes reported in annual financial statements. The SEC (SEC Regulation §210.4-08(h)) requires any U.S. public firms to disclose pre-tax income and deferred taxes for domestic and foreign operations separately, if any of those measures for non-U.S. operations exceed 5% of the consolidated total. We define a firm as MNC in a given fiscal year if it reports non-missing foreign income (Compustat item: *PIFO*) or foreign

income taxes (Compustat item: *TXFO*) in any of the previous three years.[2] It is possible that firms even with a large scale of foreign operations sometimes do not report foreign income, especially when they earn relatively low foreign income or high domestic income. By using the information in previous three years, we alleviate the concern that firms that have large foreign presence but earn low foreign income in a specific year could be defined as domestic.

There are alternative ways of defining multinationals. For instance, Denis, Denis, and Yost (2002) rely on foreign sales information obtained from the *Compustat* Geographic Segment database. There are several advantages of using foreign income information instead of foreign sales to identify multinationals. First, we have a broader sample of multinational firms as the threshold of reporting foreign income is much lower (5%) than that of reporting foreign sales (10%). Second, foreign sales reported in the Segment database include exports of goods, whereas foreign income takes into account the income generated in foreign subsidiaries. Therefore, non-missing foreign income confirms the physical presence of firms in foreign countries. Third, we can use the consistent definitions both for the U.S. and for the global sample. Lastly, foreign income information is available from early 1970s, allowing us to use a much longer time-series period than when using foreign sales. From unreported results, we examine our main results with an alternative definition for MNCs based on foreign sales, and the results are quantitatively similar.

Figure 1 reports the distribution of MNCs and DCs for the U.S. sample. In Panel A, about 34% of the U.S. firms are defined as MNCs on average over the sample period. The proportion of MNCs has been increasing gradually in 1980s and 1990s, reaching 33% in 2000 and 53% in 2013. In Panel B, we observe that the number of MNCs increases from less than 1,000 to more than 2,000 over time, while the number of DCs decreases from more than 2,000 to less than 2,000. We report the average size of MNCs and DCs in Panel C. As expected, MNCs are significantly larger than DCs in terms of market capitalization: the average market capitalization of MNCs is $2,939 million, whereas that of DCs is $766 million.

We report firm level characteristics and risk exposures for both MNCs and DCs as well as their differences in Table 1. Panel A reports the basic stock characteristics for the firm-month

[2] Foreign income tax variable (TXFO) is available from the fiscal year of 1969, while pre-tax foreign income (PIFO) variable becomes available from the fiscal year of 1984. We use foreign income tax information only to define a MNC prior to the 1984, but use both variables after 1985.

sample. Not surprisingly, compared to DCs, MNCs have higher market values and lower B/M ratios.[3] These findings suggest that if size and value effects dominate, MNCs would have lower returns than DCs. The previous 6-month return is computed by summing up the monthly returns in the past six months, and the difference between MNCs and DCs is negligible.

Panel B presents the summary statistics on factor loadings for both MNCs and DCs. We first use the Fama-French 3 factor model to obtain loadings on the market, size and value factors. All factors for U.S. are obtained from Kenneth R. French Data Library. To estimate the factor loadings of each stock, we estimate a time-series regression in each month using daily returns, which allows the loadings to be time-varying. We require at least 15 observations in each month for estimation. Compared to DCs, MNCs have significantly higher factor loadings on the market factor, but lower loadings on both size and value factors, possibly because the MNCs tend to be larger firms with lower B/M ratios. For the currency risk, we construct a foreign exchange factor (FX) using the return of trade-weighted U.S. dollar index (major currencies) from Federal Reserve Bank of St. Louis. The loading on FX is estimated from the regression of excess return on MKT and FX using daily returns. The mean currency beta for DCs is 0.021, and mean currency beta for MNCs is 0.017. The MNCs' loadings on currency risk are slightly lower than those of the DCs, which is unexpected, but the difference is not statistically significant. Choi and Jiang (2009) provide a reasonable explanation for MNCs' lower currency betas: MNCs manages foreign exchange risks more actively and effectively than DCs, and therefore it is not clear that MNCs would necessarily have higher currency betas.

Next, we collect information on a few other characteristics that are related to stock returns. Following Ang et al. (2009), we compute idiosyncratic volatility as the annualized volatility of the residuals from the regressions of daily excess returns using Fama-French 3 factor model. We obtain the data on expected idiosyncratic skewness, as in Boyer, Mitton, and Vorkink (2010), from Brian Boyer's website.[4] Default probability is computed according to Vassalou and Xing (2004). Following Novy-Marx (2013), we define gross profit as revenues minus cost of goods sold scaled

[3] B/M ratio is defined as book equity (Compustat item: *CEQ*) divided by market equity, where market equity is price times shares outstanding at the end of each month of calendar year t. To calculate a B/M ratio from January to June, we match market equity with book equity for the fiscal year ending in calendar year t-2, and for a B/M ratio from July to December, we use book equity in calendar year t-1.

[4] http://marriottschool.net/emp/boyer/Research/skewdata.html.

by total assets.[5] According to Cooper, Gulen and Schill (2008), asset growth is a strong predictor for future stock returns. Here we define it as the change in total assets scaled by lagged total assets. These accounting variables are computed on an annual basis, and we exclude observations at the top and bottom 1%. We also measure whether a firm is industrially diversified using the Compustat industrial segment database. Industry diversification is defined as one if a firm reports more than one industrial segment in a given fiscal year. Following Hou and Robinson (2006), we calculate a sales-based Herfindahl index to measure industry concentration, where we use three-digit SIC industry classifications. A high value of the Herfindahl index indicates that an industry is more concentrated and less competitive. Finally, we calculate the percentage of foreign institutional holdings out of the total shares outstanding (% Foreign Holding) using quarterly 13-F filings. Different from all other data variables, we have a much shorter time-series data on % foreign holding, which starts in 2000 rather than 1973.

Panel C provides descriptive statistics of accounting fundamentals and industry characteristics for the firm-year sample. As previous studies document, MNCs are significantly different from DCs in multiple dimensions, and the difference are statistically significant. Consistent with diversification effects, MNCs have significantly lower idiosyncratic volatility, idiosyncratic skewness and default probability relative to those of DCs. MNCs are on average more profitable: the average gross profit of MNCs is about 40%, while the DCs' gross profit is 29%. The average asset growth rate for DCs is 16%, and the average growth rate for MNCs is 13.5%, indicating the DCs have higher asset growth rate. MNCs are more likely to be industrially diversified than DCs. In addition, MNCs tend to operate in more concentrated industries as measured by Herfindahl index of industry-level sales, whereas DCs in more competitive industries. Lastly, for the subsample of firms with institutional ownership information available, we find that the percentage of foreign institutional holdings is lower for DCs, which potentially reflects the home bias of stock investors.

Given the prominence of accounting multiples in the valuation literature, we report two key accounting ratios in Panel D of Table 1: the P/E ratios and the P/CF ratios. On average, DCs average P/E ratio is 15.92, while the MNCs average P/E ratio is 19.16, with a large and significant

[5] For the U.S. sample, the gross profit is defined as (REVT – COGS/AT) using Compustat items. For the global sample, it is defined as (WC01001 – WC01051)/WC02999 using Worldscope items.

difference of 3.23. The pattern of P/CF ratios is quite similar. Following the accounting multiple literature, high valuation ratios, such as P/E, leads to a lower return in the future, which indicates that MNCs might have lower returns than DCs.

III. Empirical Results for U.S.

In this section, we examine whether the multinationality of firms leads to different returns for investors. We state the main results in Section III.A. Robustness checks are reported in Section III.B. Alternative explanations are examined in Section III.C.

A. Main Results

To establish the link between the firm's status as MNC and returns, we rely on a Fama-MacBeth (1973) regression approach. In each month, we estimate a cross-sectional regression of monthly excess returns on a MNC dummy and a variety of firm characteristics and risk properties as follows:

$$r_{i,t} = a_t + b_t MNC_{i,t-1} + c_t{}' controls_{i,t-1} + u_{i,t} \ . \qquad (1)$$

The MNC dummy and control variables are all lagged by a month or by a year (depending on the data frequency), meaning that all this information is available at the end of previous month. After we estimate the coefficients, a_t, b_t, c_t for each month, we average the monthly time-series of the coefficients over the entire sample period. We compute the time-series standard errors for the coefficients with a Newey-West (1987) adjustment with 3 lags to take into account time-series dependence. If there is no link between the firms' status as MNC and future returns, after controlling for firm characteristics and risk properties, we expect the coefficient on the MNC dummy to be insignificantly different from zero.

Table 2 presents our estimation results for equation (1). We report six regressions in Panel A. For each regression, we report the coefficients and their t-statistics. At the bottom of the table, we report the adjusted R^2's, the number of observations, and the average fraction of MNCs. For all regressions, we include standard firm-level characteristics that might affect future returns, such as Ln (size), B/M, and past 6-month return. We also include firm-level risk exposures, including

market beta, size beta, value beta, and currency risk beta.[6] All regressions include industry dummies based on Fama-French 30 industry specifications for industry fixed effects.

Regression I is our baseline regression. The coefficient on the MNC dummy is 0.272, with a highly significant t-statistic of 5.60. That is to say, after we control for firm-level characteristics and risk exposures, MNCs deliver significantly higher returns than DCs by 0.27% per month or around 3.24% per year. Our results clearly show that MNCs exhibit a return premium over DCs. In addition, we find a negative coefficient on firm size and positive coefficients on B/M and past 6-month return. Those coefficients on the firm-level characteristics are all statistically significant and the signs are consistent with previous literature. For betas, only size beta is significant with a negative sign.

From the summary statistics in Table 1, MNCs are on average larger than DCs in terms of total assets and market capitalization. To make sure that the results are robust across different size groups, we re-estimate equation (1) for firms with different sizes to allow greater flexibility along the size dimension in the Fama-MacBeth framework. To be more specific, we first sort stocks into quintiles in each month, based on the market capitalization in previous month, with group 1 being the smallest and group 5 being the largest. Then we re-estimate equation (1) for each size group. Essentially, we allow all coefficients, including the one on the MNC dummy, to be different across different size groups.

For regression II to VI for firms within each size quintile, the MNC dummy remains positive and statistically significant in all size groups, indicating that the MNC return premium is robust across size. Interestingly, the MNC premium is much larger for small and medium-size firms than for large firms. For the smallest size quintile, the coefficient on the MNC dummy is 0.401 with a t-statistic of 3.76. For the next size quintile, the MNC dummy coefficient reduces to 0.296 with a t-statistic of 4.25. For the medium size quintile, the MNC dummy coefficient further decreases to 0.294, with a t-statistic of 4.26. The 4^{th} size quintile has a slightly smaller MNC dummy coefficient of 0.273, with a t-statistic of 4.08. For the largest 20% of firms, the coefficient on MNC dummy becomes 0.135 with a t-statistic of 2.29.

[6] As an alternative specification, we also estimate the regressions additionally including momentum beta. With this specification, the magnitude of the MNC coefficient increases to 0.304.

At the bottom of the table, we present the distribution of MNCs among the five size quintiles. For the smallest size groups, about 16.08% of firms are MNCs; while for the largest size group, about 55.71% of firms are MNCs. This is consistent with the summary statistic that large firms are more likely to be MNCs. Overall, from Panel A of Table 2, we find MNC return premium for all size groups, and the effect is much larger for the smaller firms. The analysis by size groups also confirms that our results are not driven by a specific subset of large or small stocks.

Given the return premium associated with the MNC dummy in Panel A, we view that whether a firm is a MNC or a DC might serve as a useful signal for investors when they form their portfolios. Can investors long the MNCs and short the DCs and make abnormal returns? To answer this question, we first construct MNC and DC portfolios based on their MNC status in the past year. Next, we calculate the monthly value-weighted excess returns of both portfolios. In the last step, we obtain the abnormal returns (alphas) from a time-series regression of portfolio excess returns on Fama-French three factors (FF3) and momentum (FF4).

We present the portfolio returns, alphas and their differences in Table 2 Panel B. The average monthly excess return on MNCs is 0.980%, while the excess return on DCs is 0.848%. The difference is 0.132% with a t-statistic of 1.74. Using Fama-French three factor models, we find that the monthly alphas of MNC and DC portfolios are 0.076% and -0.084%, respectively. The difference in alpha is 0.160% with a t-statistic of 2.13. When we add in the momentum factor, the difference in alpha is only slightly smaller at 0.154% per month with a t-statistic of 2.00. It seems that investors can use MNC/DC status as a signal for investment and obtain positive and significant alphas.

In the right half-panel of Panel B of Table 2, we sort firms into size quintiles and construct MNC and DC portfolios within each size quintile. For the smallest firms, the excess return difference is 0.428, and the alpha for FF4 model is 0.574, both highly significant. For the next three size groups, the return differences are all significant and positive, but the magnitude of higher returns of MNC portfolios is gradually decreasing in firm size. For the largest size group, the excess return difference is at 0.113, positive but insignificant, while the alpha from FF3 and FF4 models are 0.154 and 0.147, both marginally significant.

To summarize, in this section we document that the MNCs have higher returns than DCs over the full sample and across different size groups, and we form a tradable and profitable strategy for investors based on whether a firm is a MNC or DC.

B. A Closer Look: Time and Industry

Our U.S. sample spans 40 years from 1973 to 2013. Over the 40 years, we have witnessed global capital market integration over the 1970s and 1980s, the internet bubble in late 1990s and earlier 2000s, and finally the financial crisis around 2008. Is the MNC premium particularly driven by one specific sample period? To answer this question, we split our sample in three ways. First, we divide our sample period into four 10-year sub-periods: 1973-1983, 1984-1993, 1994-2003 and 2004-2013. Second, we single out the financial crisis period between 2007Q3 and 2009Q1. Finally, we separate our samples based on the NBER economic recession periods. The results are presented in Panel A of Table 3.

For the four 10-year sub-periods, the coefficient for MNC dummy starts at 0.162 for 1973-1983 with a significant t-stat of 2.45, increases to 0.259 for 1984-1993 with a significant t-stat of 2.84, peaks at 0.467 for 1994-2003 with a significant t-stat of 5.49, and drops to 0.211 for 2004-2013 with an insignificant t-stat of 1.57. All coefficients are statistically significant over all sub-periods except in the last 10 years. Part of the drop in the MNC return premium and the lower statistical significance over the last 10 years is due to the financial crisis. During 2007Q3 and 2009Q1, the MNC dummy has a negative coefficient of -0.327, yet statistically insignificant, possibly due to the short and noisy sample period. Outside of the financial crisis, the MNC dummy is highly significant at 0.299 with a t-stat of 6.59. Between NBER recessions and non-recessions, the coefficients for MNC dummy in a non-recession period is at 0.319 with a t-statistic of 6.67, while during a recession period, the MNC dummy coefficient is essentially zero with no statistical significance. Combining all results in Panel A, we observe the clear pattern that MNCs have higher returns than domestic companies over most of the 40 past years, but not over the financial crisis period.

In Panel A of Figure 2, we plot the time-series coefficients on MNC dummy over the entire U.S. sample period. We find that the coefficient on MNC dummy stays positive for most of the time. However, the recent financial crisis witnesses the worst performance of the MNC premium:

the coefficient on the MNC dummy is strongly negative. This result is partially consistent with Fillat and Garreto (2015), who argue that MNCs have higher risk exposures to the downside risk. From Table 1, we know that MNCs have higher market betas than DCs in general. From unreported results, we find that MNCs' market betas are higher during market recessions than non-recession periods by 0.027. This finding implies that MNCs do have higher exposure to market risk during down time. However, it might not be the ultimate reason for the high returns on MNCs, because we let market betas to be time-varying in all regressions within the Fama-MacBeth framework, which should account for the increased risk exposure during recessions, and yet the MNCs return premium is still positive and significant.

We are also interested in understanding whether the MNC return premium only exists in specific industries. Similar to the size dimension approach, here we re-estimate the Fama-MacBeth regression in equation (1) within each industry, allowing the coefficients to vary across industries. Our industries are identified using Fama-French 30 industry classifications based on SIC codes. To obtain relatively reliable estimates, we require each industry to have at least 20 observations each month, resulting in three industries dropped from the sample (Beer and Liquor, Tobacco Products, and Coal). Here we still need to be cautious with statistical inference because some industries still have a small number of observations in cross section, which might generate noisy estimates.

In Panel B of Table 3, we first present the number of firms and the percentage of MNCs within each industry. Industries "Chemicals", "Fabricated Products and Machinery" and "Automobiles and Trucks" are the top three with the highest MNC percentage around 65%, while "Utilities", "Banking", and "Retail" are the bottom three with the MNC percentage lower than 20%. In the next two columns, we present our results in the order of the magnitude of the coefficient of MNC dummy. The coefficients are positive for all but four industries, varying between 0.001 and 0.673, indicating that the MNC premium is not restricted to some particular industries. For 8 industries, the coefficient is positive and statistically significant at 10% or lower. In particular, "Chemicals" industry has the largest coefficient on the MNC dummy of 0.673, followed by "Automobiles and Trucks", "Personal and Business Services", "Healthcare, Medical Equipment, Pharmaceutical Products", and "Business Equipment".

The risks of operating in foreign countries might be different across industries, depending on the products and services that firms produce and sell. According to Mian and Sufi (2014), we categorize industries into tradable and non-tradable industries using the 4-digit NAICS industry codes. While tradable industries are involved in intensive imports and exports of goods, non-tradable industries including retails, restaurants, and constructions, produce services that would not be easily traded. The proportion of MNCs by tradable vs. non-tradable industries indicates that firms that are in tradable industries are more likely to be MNC. At the bottom of the Panel B of Table 3, we find that the MNC coefficient of tradable industries is positive and highly significant, while the coefficient is insignificant in non-tradable industries.

To summarize, in this section we take a closer look at the MNC premium along the time and industry dimension. We find that the MNC premium is positive for all sub-periods, but it turns negative during the financial crisis. We also find the MNC premium is prevalent across most industries, especially for tradable industries.

C. Potential Explanations/Channels

Why do MNCs have higher returns than DCs? Is the MNC return premium driven by some well-known empirical patterns in previous literature? In this subsection, we include eight previously-documented empirical patterns/anomalies that predict cross-sectional stock returns, and examine whether they are the reason for the MNC return premium.

We adopt two alternative approaches. The first approach is straightforward. For each pattern/anomaly, we include the key variable of the pattern/anomaly in equation (1) as an additional control. If the MNC return premium is driven by the anomalies, the additional control presumably would absorb the return difference associated with MNC, and the MNC dummy coefficient would become smaller and insignificant. These results are reported in Table 4 Panel A. The number of months included in the regressions might change across different specifications due to the data availability of each control variable added. For a comparison purpose, we refer to regression I in Panel A Table 2 as the benchmark regression.

The first variable we add in as a control is idiosyncratic volatility, as in regression I. According to Ang et al. (2006), firms with higher idiosyncratic volatility have lower returns. From summary statistics, we find that MNCs have lower idiosyncratic volatility, which might be the

reason why they have higher returns. When we add in idiosyncratic volatility as an additional control, the coefficient on idiosyncratic volatility is -0.010 with a t-statistic of -4.54, which is consistent with Ang et al. (2006). Meanwhile, the coefficient on MNC dummy is 0.266, which is slightly smaller than 0.272 in the benchmark regression, but it is still highly significant. Clearly, idiosyncratic volatility as a control, cannot explain away the MNC return premium.

Next, we include firm-level idiosyncratic skewness. Boyer, Mitton, and Vorkink (2010) claim that investors prefer stocks with lottery effect, and those stocks might be overpriced. Therefore, firms with positive skewness would have lower returns in the future. In our case, summary statistics show that DCs have higher idiosyncratic skewness than MNCs, so it is possible that DCs have lottery-like properties, and therefore they have lower returns than MNCs. In regression II, the idiosyncratic skewness coefficient is significant and negative, which is consistent with negative returns for firms with positive skewness as in previous studies. However, we still find the MNC dummy coefficient significant at 0.254 with a t-statistic of 5.18.

Summary statistics in Table 1 show that DCs have higher default probability than MNCs on average. In regression III, we include a firm-level default probability as a control, considering that the return difference between MNCs and DCs can possibly come from the difference in default probability. Consistent with Campbell, Hilscher and Szilagyi (2008), we find that the default probability coefficient is significantly negative. However, after controlling for the default probability, the MNC dummy has a coefficient of 0.308 with a highly significant t-statistic of 5.72.

A recent study by Novy-Marx (2013) finds that gross profit is positively related to expected return. Our summary statistics show that MNCs are more profitable than DCs. In regression IV, we investigate whether a return difference between MNCs and DCs is related to the difference in firm profitability. We find that the profitability coefficients are positive and significant, consistent with previous literature, but even after controlling for profitability, the MNC dummy coefficient is 0.215, still highly significant.

In addition, according to Cooper, Gulen, and Schill (2008), asset growth is negatively associated with subsequent abnormal returns. Although MNCs might have higher growth in foreign markets, our summary statistics show that MNCs have lower total asset growth than DCs on average. It is possible that the MNC dummy captures the difference in asset growth between MNCs and DCs. In regressions V, the coefficient on asset growth is significantly negative, as

expected. More importantly, we find that the MNC dummy stays statistically significant at 0.181, after controlling for the total asset growth of firms.

Firms normally consider two alternative diversification strategies: geographical diversification and industrial diversification. As in Denis et al (2002), these two diversification strategies are not substitutes for each other, and they might have different impacts on stock returns. From univariate tests, we know that internationally diversified firms tend to be industrially diversified at the same time. This raises a possibility that MNCs earn higher returns than DCs because they are industrially diversified. Meanwhile, as documented in Cohen and Lou (2012), the industry-level diversification could be positively associated with future returns due to their complicated structures. In regression VI, we consider whether industry diversification affects the return difference related to global diversification. The coefficient on the industry diversification is insignificantly different from zero, which indicates that after controlling for other characteristics, the industry diversification does not affect stock returns. The coefficient on the MNC dummy remains at 0.272 with a t-statistic of 5.65.

From the univariate comparison from Table 1, we notice that MNCs appear more in less competitive industries than DCs do. From Hou and Robinson (2006), firms in concentrated industries (with less competition) exhibit return discount. Although the higher industry concentration of MNCs predicts lower returns, we add in an industry concentration variable as a control in regression VII. The coefficient on the concentration is negative but not significant. The lack of significance is because we include industry fixed effect, which is highly correlated with the concentration index at industry level.[7] The coefficient on MNC dummy is still 0.270 with a t-statistic of 5.51.

Finally, we examine whether the foreign investor holdings leads to return differences between MNCs and DCs. Now we include the percentage of foreign institutional holdings out of the total number of shares outstanding to indirectly control for home bias.[8] Notice that data for foreign holdings are available for a much shorter period, with only 162 months of observations. The estimate for the foreign holding variable is positive and significant at 10% level. In this

[7] When we estimate the regression VII without industry dummies as an alternative specification, the coefficient on industry concentration become more negative (-0.362) and significant at 5% level.

[8] From the regressions not reported, when we examine the percentage of foreign institutional holdings out of total institutional holdings, the results are similar.

regression, the MNC dummy coefficient becomes slightly smaller at around 0.243, with a t-statistic of 2.34. [9]

After we add in controls one by one, the MNC dummy coefficients are always positive and significant, implying that none of the controls seems to be the main driver for the MNC return premium. We also compare the magnitudes of the coefficients. The benchmark regression coefficient is 0.272. The largest drop in the coefficient is observed in regression V, controlling for asset growth, where the coefficient becomes 0.181, but the magnitude of the coefficient of MNC is still 70% of that of the baseline regression.

In the last regression in Table 4 Panel A, we include all the control variables mentioned above except the percentage of foreign institutional holding due to the short period of data availability. With all seven additional controls, the MNC dummy coefficient becomes 0.163, which is still 60% of the original magnitude, and the t-statistic is highly significant at 3.03. Out of the six controls, the first five variables are significant with expected signs, while the industry diversification and industry concentration are insignificant.

Using our first approach, we find that additional control variables that potentially affect future returns cannot explain away the MNC return premium. One issue with the first approach is that when we include the MNC dummy and the other control variables in the same regression, it only proves the robustness rather than the causality. As a result, we further examine possible driving forces for the higher returns for the MNCs in more depth by using a two-stage approach.

In the first stage, we project the MNC variable on possible channels, as below:

$$MNC_{i,t} = a_t + b_t proxy_{i,t} + e_{i,t}\,, \qquad (2)$$

where the proxy can be any possible channels, such as idiosyncratic volatility or profitability, that might be possibly related or affecting a firm's MNC/DC status. After we estimate the specification above, we can decompose the MNC dummy into two parts,

[9] We also consider the real option value theory in Fillat and Garetto (2015). However, the theory is based on sunk cost of entering a foreign market, which is not directly observable. We use fixed costs at both firm and industry level as proxy for sunk cost, but the fixed cost variation fails to explain away the MNC premium.

$$MNC_{i,t+1} = \left(\hat{a}_t + \hat{b}_t proxy_{i,t+1}\right) + \hat{e}_{i,t+1} = XMNC_{i,t+1} + EMNC_{i,t+1}. \quad (3)$$

That is, XMNC represents the part of the MNC dummy predicted by (or associated with) a potential channel, and EMNC is the part of the MNC dummy orthogonal to the potential channel.

At the second stage, we re-estimate the following predictive regression:

$$r_{i,t} = c_t + d_t XMNC_{i,t-1} + e_t EMNC_{i,t-1} + f_t' controls_{i,t-1} + u_{i,t}\ . \quad (4)$$

From previous results, we already know that the MNC dummy itself has a significant positive coefficient. If the proxy used in the first stage is an important reason for the MNC's predictive power, we expect to find a coefficient d_t significant. If the coefficient e_t is significant, it means that a potential channel in the first stage might not be the only important reason for the MNC's predictive power.

We can estimate the specifications in equations (2) and (4) using either the Fama-MacBeth regression or the pooled panel regression. To be consistent with previous sections and to give the potential channels a maximum flexibility, we present our results estimated using the Fama-MacBeth regression approach. The results using pooled panel regression are quantitatively similar.

We report the first stage estimation results in Panel B of Table 4. In columns I to VIII, we consider nine alternative channels one by one. In the last column IX, we project a MNC dummy on all channels together except the percentage of foreign holdings (due to a shorter time period) in the first stage. As we observe in the univariate comparison in Table 1, it is not surprising to find that idiosyncratic volatility, idiosyncratic skewness, and default probability are negatively related to the MNC dummy, while the profitability, industrial diversification, industry concentration, shares of foreign investor holdings, and the beta on currency exposure are positively related to the MNC dummy. This result confirms our finding in the summary statistics, indicating that the MNC firms share many common features. However, in terms of R^2, none of the above variables can explain more than 6% of the cross-sectional variation between MNCs and DCs. When we put all eight variables together except the foreign investor holdings, the average R^2 becomes 12.07%.

Based on the first stage estimation, we decompose the MNC dummy into XMNC and EMNC, and include them in the second-stage regression predicting future stock returns. These

results are reported in Panel C of Table 4. In the first nine columns, we only include one channel individually, and in the last column, we include all potential channels. In column I, we first consider XMNC from the idiosyncratic volatility channel. It has a positive coefficient for future return but is only marginally significant. The error term, the EMNC, however, has a highly significant coefficient with a t-statistic of 5.50. This finding suggests that the MNC's predictive power probably does not root from its correlation with the idiosyncratic volatility. A similar pattern exists for idiosyncratic skewness, default probability, industrial diversification, industry concentration and currency risk beta.

In column IV, we consider the gross profitability channel. The coefficient on XMNC is 2.445 with a t-statistic of 5.38 and the coefficient on EMNC is 0.210 with a t-statistic of 4.35. This indicates that part of the positive predictive power of the MNC dummy is from its relation with MNC's higher profitability. However, the significance of the coefficient on EMNC implies that profitability is not the only channel that affects the MNC's predictive power. A similar but weaker pattern also holds for foreign investor holdings.

In the last regression, we include all potential channels except the percentage of foreign holding. We find that both the XMNC and EMNC are positive and significant, which implies that the potential channels we considered above are part of the reason why MNCs have higher future returns than DCs, but many other factors are still not accounted for.

Overall, we examine nine alternative explanations for the MNC return premiums, and none of the explanations can fully explain the MNC return premium.

IV. Empirical Results for All Developed Countries

Is the MNC premium U.S. specific or do MNCs have higher returns than DCs in other countries too? To answer this question, we examine the return difference between MNCs and DCs in other countries outside the U.S. We introduce the data in Section IV.A. The main results for the global sample are presented in Section IV.B. In Section IV.C, we investigate possible explanations for the MNC return premium in the global sample.

A. **Data of Global Sample**

For the global sample, we focus on 22 countries that are classified as developed markets by MSCI as of December 2013, which include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, United Kingdom, and U.S. For countries outside of the U.S., we obtain the list of firms from Worldscope. We obtain U.S. dollar-denominated monthly stock returns from Datastream and annual accounting data from Worldscope. We include ordinary common stocks only and exclude depositary receipts (DRs), real estate investment trusts (REITs), and preferred stocks.[10] Our sample period begins in January 1990 and ends in December 2013. The sample starts from 1990 because Worldscope data coverage on international firms is limited before 1990 for several countries. We include the observations from these countries when they become available.[11]

As in the U.S. sample, we classify firms into MNCs and DCs in the global sample based on the foreign income variable (Worldscope item: WC08741). A firm is defined as MNC if it reports non-missing foreign income in the previous three years.

Summary statistics on the global sample are reported in Table 5. In Panel A, we report the average number of MNCs and DCs each year, as well as their average market capitalization by country. The proportion of MNCs in other countries is much lower compared to the U.S. sample. About 9% to 35% of firms in G6 (G7 exclude U.S.) countries are MNCs, and MNC's market capitalization is three to eight times higher than that of DCs. In the rest of countries, the proportion of MNCs considerably varies across countries (8.13% to 40.2%), and the difference in size between MNCs and DCs is substantial as well. Specifically, firms in Hong Kong, Singapore, and Ireland are more globalized (more than 35% of firms are MNCs.), while firms in Sweden, Norway, and Israel are more likely to focus on domestic operations (less than 10% of firms are MNCs).

[10] Following Karolyi and Wu (2012), we also exclude stocks with name including "REIT", "REAL EST", "GDR", "PF", "PREF", "PRF", "ADS", "CERTIFICATES", "RESPT", "Rights", "Paid in", "UNIT", "INCOME FD", "INCOME FUND", "HIGH INCOME", "INC.&GROWTH", "INC.&GW", "UTS", "RTS", "CAP.SHS", "SBVTG", "STG.SAS", "GW.FD", "RTN.INC", "VCT", "ORTF", "HI.YIELD", "GUERNSEY", "DUPLICATE", "DUAL PURPOSES", and "NOT Rank for Dividend".

[11] The stocks in following countries are included in the global sample after our sample period: Netherland (1992), New Zealand (1992), Switzerland (1994), Germany (1996), Sweden (1996), Israel (1997), Norway (1997), Austria (2002), Denmark (2003), Belgium (2004), Finland (2005), Portugal (2005), Italy (2006), Spain (2006).

Panel B reports summary statistics on firm level characteristics and risk exposures. In terms of characteristics, due to data availability, we only include the size, BM, past 6-month returns, idiosyncratic volatility, gross profitability, and asset growth. More importantly, our global sample allows us to consider an interesting variable called "global accessibility". In the global capital markets, one possible reason for a firm to become a MNC is to obtain better access to the capital. For instance, a domestic firm in Austria might choose to expand its operations in foreign countries and list its stocks in Euronext or U.S. to gain access to the broader European and U.S. capital markets. As documented in Karolyi and Wu (2012), globally accessible firms might have different risk properties than locally accessible firms, which possibly drive the difference in returns between MNCs and DCs. Following Karolyi and Wu (2012), we compute the globally accessible dummy, which equals one if the firm is globally accessible and zero otherwise. A firm is defined as globally accessible if one of its stocks is listed in any of the following markets: (i) U.S., including NYSE/AMEX, NASDAQ, and the Non-NASDAQ OTC markets; (ii) U.K., including the London Stock Exchange, London OTC Exchange, London Plus Market, and SEAQ International; (iii) Europe, including Euronext at Amsterdam, Brussels, Lisbon, Paris, and EASDAQ; (iv) Germany in which the Frankfurt Stock Exchange is located; (v) Luxembourg in which the Luxembourg Stock Exchange is located; (vi) Singapore, including the Singapore Stock Exchange, Singapore OTC Capital, and Singapore Catalist; and (vii) Hong Kong in which the Hong Kong Stock Exchange is located. Under this definition, all the firms in the U.S., Belgium, Portugal, and Singapore are globally accessible.

To estimate the risk exposure parameters (betas), we consider both the global-local CAPM model and the global-local Fama-French 3 factor model, as in Bekaert, Hodrick and Zhang (2009) to estimate loadings on country-level factors (MKT, SMB, and HML) and global-level factors (WMKT, WSMB, and WHML). We first calculate a country-level MKT factor as the value-weighted return of all firms in that country. To obtain country-level SMB factors, we sort firms within the country into three size groups for each month, based on 6-month lagged market value. The country size factor, SMB, is computed as the value-weighted return difference between firms in the bottom tercile (smallest) and firms in the top tercile (biggest). Similarly, the country value factor, HML, is the value-weighted return difference between firms in the highest B/M tercile and the lowest B/M tercile. The global factors, WMKT, WSMB and WHML are calculated as the

value-weighted sum of MKT, SMB, and HML factors of individual countries, respectively, where the weight equals the lagged market value of all stocks in each country. For the currency risk, we construct the same foreign exchange factor (FX) using the return of trade-weighted U.S. dollar index (major currencies) from Federal Reserve Bank of St. Louis. The loading on FX is estimated from the regression of excess return on MKT, WMKT, and FX. For the global sample, idiosyncratic volatility is estimated from the regressions of daily excess return on MKT, SMB, HML, WMKT, WSMB, and WHML. The betas are estimated at firm level with a time-series regression in each month using daily returns, which allow the loadings to be time-varying. We exclude observations in the top and bottom 1% of factor loadings in each month to exclude outliers.

From Panel B of Table 5, similar to the U.S. sample, we find that MNCs are larger, with lower B/M ratio, and higher past returns. MNCs also have lower idiosyncratic volatility, higher profitability, and lower asset growth than DCs, and they are more globally accessible. In terms of betas, MNCs have higher exposures to the market risk, both global and local, while the exposure to size and value factors are more mixed. As opposed to the U.S. sample, the MNCs outside the U.S. have significant higher currency betas than the DCs.

B. **Main Results on the Global Sample**

For the global sample, we re-estimate the benchmark equation (1) with a few modifications. For the U.S. analysis in Section III, we only consider the U.S. risk factor exposures by including betas on market, size, and value factors. For assets in the global capital markets, the situation becomes more interesting. If the global capital markets are fully integrated, then only the global factors are relevant. If the global capital markets are fully segmented, then only the local factors are relevant. If they are partially integrated, then both global and local factors might be relevant. For this reason, in the global sample analysis, we include risk exposures to both local and global risk factors to accommodate all possible integration status. Meanwhile, in terms of industry classification, we collect FTSE level-4 industry identifications from DataStream and follow Bekaert, Hodrick and Zhang (2009) to reconcile between the SIC and the FTSE systems.

Table 6 reports the Fama-MacBeth regression results for the global sample. To save space, we present results for firms in all countries, U.S. only, G6 countries (G7 countries excluding U.S.), and non-G7 countries separately. We use factor loadings from two different global-local models

as a proxy for risks: a global-local CAPM model in the left half panel, and a global-local Fama-French three factor model in the right half panel. As before, we control for firm characteristics such as B/M, ln (size), past 6-month return, and various betas, as well as industry fixed effects. To control for a difference in return tread in each country, we also include country fixed effects in all regressions.

Starting from the results based on a global-local CAPM model in the left half panel, for all firms in the global sample in regression I, the MNC dummy coefficient is 0.231 with a t-statistic of 4.49. That is to say, in the global sample, MNCs have higher returns than DCs by 0.231% per month, and the difference is highly significant. Compared to 0.262 in the U.S. sample (regression II) over the same sample period, the magnitude of the MNC dummy coefficient using the global sample is slightly smaller, but they are similarly significant. When we move on to the G6 sample in regression III, the MNC dummy coefficient becomes 0.193 with a t-statistic of 3.10, which indicates that the MNC premium is also sizable and significant in the G6 sample. When we extend to the non-G7 countries, the coefficient becomes -0.004 and is not statistically significant. In the right panel, when we use factor loadings from global-local Fama-French three factor model to control for risks, the results stay qualitatively similar.

In Figure 2 Panel B, we plot the time-series coefficients on MNC dummy for the global sample, based on regression I in Table 6. Compared to the U.S. time series in Panel A of Figure 2, the time-variation in MNC coefficient is more volatile, but for most of the time the MNC coefficient stays positive, except for a few recessions, such as Asian financial crisis in 1997-1998, internet crisis around 2002, and recent financial crisis in 2008.

C. **Possible Explanations for the MNC Return Premium**

For the global sample, due to data limitation, we are unable to conduct a thorough robustness check as in the U.S. sample. We mainly focus on the idiosyncratic volatility, gross profitability, asset growth, and global accessibility as additional controls. As before, if any of the controls is the reason for the MNC premium, we expect that the MNC dummy loses its significance in the presence of these controls.

Results are presented in Table 7. In regressions I to III, we include the idiosyncratic volatility, profitability and global accessibility variable one by one, and in regression IV, we

include all three controls. The MNC dummy coefficient varies between 0.155 and 0.274, and is always statistically significant. Among the three controls, the idiosyncratic volatility variable carries a negative sign but is statistically insignificant, both the gross profit and global accessibility are positive and highly significant.

Overall, we believe that none of idiosyncratic volatility, gross profit, or global accessibility is the main reason why MNCs have higher returns.

V. Conclusions

In this paper, we examine whether having international business is important in explaining cross-sectional and time-series variations in stock returns.

Using monthly returns of 18,796 individual U.S. stocks from 1973 to 2013, we find strong evidence that multinational stocks earn significantly higher returns by 27 basis points over domestic stocks. This MNC return premium is persistent in different size groups, over different time periods, and within most of the industries, while the magnitude of MNC premium is much stronger in smaller firms, non-recession times, and tradable industries. The higher return of MNC is not associated with previously known return determinants. We consider various variables, including idiosyncratic volatility, idiosyncratic skewness, default probability, profitability, asset growth, industry diversification, industry concentration, and foreign investors' holdings. After controlling for these potential factors, we confirm the strong and reliable explanatory power of a firm's status as MNC in stock returns.

Based on previous studies on the determinants of international corporate diversification strategies, we also explore the mechanisms by which MNCs yield higher returns than DCs. Interestingly, foreign exchange risk does not seem to be an important channel explaining MNC's higher returns. However, we find that MNC's lower idiosyncratic volatility, higher profitability and foreign investors' holdings are potential channels partly explaining the MNC's premium.

We find the similar pattern that monthly stock returns of MNCs are higher than that of DCs, when we use a sample of 22,762 stocks in 22 developed countries over 1990-2013. The results using the global stock returns are robust in different specifications controlling for both local- and global-factors.

Our findings provide strong evidence that the existence of firms' international activities is relevant in determining stock returns. One implication of our results is that as firms' operations are more globalized, international expansion decisions would affect how investors recognize those firms in the global stock markets. Therefore, understanding why and how firms expand their operations abroad would be important understanding how investors process that information into prices in stock markets.

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Table 1. Summary Statistics: U.S. Sample

This table reports the summary statistics for domestic and MNC firms in U.S. The sample period is from February 1973 to December 2013. A firm is defined as MNC if it reports non-missing foreign income (Compustat item: PIFO) or foreign income taxes (Compustat item: TXFO) in any of the previous three years. Other variables are defined in Appendix. All variables are at monthly frequency, except total assets, gross profit, industry diversification, industry concentration and asset growth in Panel C, which are at annual frequency. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels.

	Domestic				MNC				Difference (MNC-Domestic)	
Variable	**N**	**Mean**	**Median**	**Std**	**N**	**Mean**	**Median**	**Std**	**Mean**	**t-value**
Panel A										
Ln(Size)	1,325,192	4.276	4.148	2.015	675,497	5.827	5.802	2.153	1.551***	492.30
B/M	1,325,192	0.875	0.659	2.320	675,497	0.748	0.553	2.182	-0.127***	-38.17
Previous 6-Month Return	1,325,192	8.361	6.231	40.604	675,497	8.393	7.391	36.074	0.032	0.57
Panel B										
b(MKT)	1,325,192	0.782	0.686	1.902	675,497	1.000	0.958	1.555	0.218***	86.65
b(SMB)	1,325,192	0.699	0.527	2.596	675,497	0.696	0.562	2.173	-0.003	-0.94
b(HML)	1,325,192	0.233	0.198	3.165	675,497	0.142	0.123	2.682	-0.091***	-21.34
b(FX)	1,325,192	0.021	0.000	2.703	675,497	0.017	0.007	2.314	-0.004	-1.17
Panel C										
Total Assets ($ Million)	124,252	2291.797	86.323	29017.271	60,622	4669.656	332.131	38510.934	2377.858***	13.45
Idiosyncratic Volatility	1,325,192	42.823	34.622	31.860	675,497	36.794	29.765	25.807	-6.029***	-144.03
Idiosyncratic Skewness	1,149,279	1.162	1.123	0.715	604,971	0.944	0.909	0.582	-0.218***	-217.00
Default Probability	1,059,059	0.095	0.054	0.439	570,028	0.075	0.038	0.324	-0.020***	-33.11
Gross Profit	123,956	0.289	0.234	0.271	60,583	0.399	0.373	0.227	0.109***	91.17
Asset Growth	110,332	0.160	0.079	0.393	57,630	0.135	0.074	0.339	-0.025***	-13.68
Industry Diversification	123,906	0.374	0.000	0.484	60,617	0.626	1.000	0.484	0.252***	105.22
Industry Concentration	124,204	0.217	0.160	0.201	60,613	0.241	0.189	0.201	0.024***	24.29
% Foreign Holding	304,152	0.027	0.014	0.035	248,792	0.045	0.039	0.040	0.018***	181.16
Panel D										
P/E ratio	93203	15.923	11.695	36.742	48113	19.156	14.268	38.223	3.233***	15.27
P/CF ratio	85234	8.679	7.034	22.683	46697	10.544	8.337	20.663	1.865***	15.14

Table 2. Fama-MacBeth Regression and Time-Series Regression Results: U.S. Sample

This table reports the Fama-MacBeth regression and time-series regression results for U.S. sample. The sample period is from February 1973 to December 2013. Panel A present the time-series averages of individual stock cross-sectional Fama-MacBeth regression coefficient estimates and t-statistics for the full sample and by size group. In each month, we sort the stocks into quintiles based on their market value in the previous month. All regressions include industry dummies based on 30 Fama-French industry classification. Panel B presents the performance of MNC and Domestic portfolios from time-series regression estimations for the full sample and by size group. In each month, we form portfolios based on MNC status in the previous month and calculate the value-weighted excess returns, FF-3 alpha, and FFC-4 alpha. FF-3 alpha is the intercept from a regression of monthly excess return on Fama-French three factors. FFC-4 alpha is the intercept from a regression of monthly excess return on Fama-French three factors and momentum. All variables are defined in Appendix. T-statistics, adjusted for serial correlation using Newey and West (1987) standard errors with three lags, are presented in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels.

Panel A. Fama-MacBeth Regression Result: Full Sample and By Size Group

	Full Sample	**Size Group**				
		1 Smallest	**2**	**3**	**4**	**5 Largest**
	I	**II**	**III**	**IV**	**V**	**VI**
Intercept	1.191**	4.056***	0.043	-0.256	0.668	0.822*
	(2.27)	(6.18)	(0.07)	(-0.40)	(1.12)	(1.69)
MNC Dummy	0.272***	0.401***	0.296***	0.294***	0.273***	0.135**
	(5.60)	(3.76)	(4.25)	(4.26)	(4.08)	(2.29)
Ln(Size)	-0.142***	-1.335***	0.007	0.062	-0.028	-0.102**
	(-3.49)	(-10.75)	(0.06)	(0.66)	(-0.41)	(-2.58)
B/M	0.312***	0.282***	0.392***	0.307***	0.216***	0.331***
	(8.12)	(6.78)	(6.93)	(5.08)	(2.97)	(3.51)
Previous 6-Month Return	0.003**	-0.005***	0.010***	0.011***	0.009***	0.006***
	(2.14)	(-3.04)	(6.09)	(6.60)	(4.63)	(2.59)
b(MKT)	-0.001	0.071	-0.068	-0.006	-0.020	-0.035
	(-0.02)	(1.13)	(-1.03)	(-0.09)	(-0.27)	(-0.38)
b(SMB)	-0.053**	0.020	-0.035	-0.095***	-0.082**	-0.093***
	(-2.15)	(0.70)	(-1.06)	(-3.43)	(-2.51)	(-2.76)
b(HML)	0.024	-0.019	0.038	0.024	0.027	0.029
	(0.87)	(-0.57)	(1.36)	(0.75)	(0.74)	(0.66)
b(FX)	-0.005	-0.024	0.002	0.007	0.018	-0.011
	(-0.37)	(-1.08)	(0.14)	(0.37)	(0.93)	(-0.50)
Industry Dummies	Y	Y	Y	Y	Y	Y
Adjusted R^2	5.50%	2.80%	4.70%	6.20%	9.70%	16.20%
N	491	491	491	491	491	491
% of MNCs	34.18%	16.08%	24.34%	33.40%	41.35%	55.71%

Panel B. Time-Series Regression Result

	Full Sample			MNC-Domestic: By Size Group				
	MNC	**Domestic**	**Difference**	**1 Smallest**	**2**	**3**	**4**	**5 Largest**
Excess Return	0.980***	0.848***	0.132*	0.428***	0.419***	0.329***	0.222**	0.113
	(3.50)	(3.32)	(1.74)	(3.59)	(4.37)	(4.00)	(2.50)	(1.25)
FF-3 Alpha	0.076***	-0.084	0.160**	0.523***	0.321***	0.242***	0.133*	0.154*
	(2.78)	(-1.65)	(2.13)	(4.37)	(3.66)	(3.12)	(1.66)	(1.89)
FF-4 Alpha	0.078***	-0.075	0.154**	0.574***	0.409***	0.311***	0.245***	0.147*
	(2.82)	(-1.44)	(2.00)	(4.71)	(4.68)	(4.01)	(3.15)	(1.76)

Table 3. Fama-MacBeth Regression Results: Further Tests (U.S. Sample)

This table reports the Fama-MacBeth regression results by subperiod, by industry and with additional controls for U.S. sample. The sample period is from February 1973 to December 2013. Panel A presents the coefficients and t-stats of the MNC dummy, the average number of firms, and the average percentage of MNCs for each 10-year subperiod, (non) financial crisis period, and (non) NBER recessions, based on Model I in Table 2. Panel B presents the average number of firms, and the average percentage of MNCs, the coefficients and t-stats of the MNC dummy by industry based on Fama-French 30 industry classification. The results are sorted in a descending order based on the size of the coefficient on MNC dummy. Industries with less than 20 firms are omitted. T-statistics, adjusted for serial correlation using Newey and West (1987) standard errors with three lags, are presented in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels.

Panel A. By Subperiod

	1973-1983	**1984-1993**	**1994-2003**	**2004-2013**	**Financial Crisis**	**Excl. Financial Crisis**	**NBER Recess.**	**Excl. NBER Recess.**
MNC Dummy	0.162**	0.259***	0.467***	0.211	-0.327	0.299***	-0.002	0.319***
***t*-statistics**	(2.45)	(2.84)	(5.49)	(1.57)	(-0.72)	(6.59)	(-0.01)	(6.67)
# of Firms	3,294	4,199	5,245	3,632	3,783	4,088	3,715	4,137
% of MNCs	29.44%	27.42%	32.37%	47.92%	46.56%	33.62%	33.61%	34.28%

Panel B. By Sector

FF 30 Industry	Description	# of Firms	% of MNC	MNC Dummy	*t*-stat
9	Chemicals	77	68.68%	0.673***	(3.42)
15	Automobiles and Trucks	59	64.78%	0.479*	(1.70)
22	Personal and Business Services	396	41.79%	0.477***	(4.03)
8	Healthcare, Medical Equipment, Pharmaceutical Products	294	35.80%	0.452***	(2.99)
23	Business Equipment	406	55.88%	0.329***	(2.75)
13	Fabricated Products and Machinery	160	65.70%	0.325*	(1.94)
19	Petroleum and Natural Gas	164	34.77%	0.302**	(2.07)
1	Food Products	97	39.29%	0.291*	(1.90)
16	Aircraft, Ships, and Railroad Equipment	31	48.10%	0.362	(1.47)
21	Communication	90	20.39%	0.248	(1.29)
4	Recreation	87	38.79%	0.233	(1.19)
10	Textiles	35	44.36%	0.222	(0.87)
27	Retail	208	18.17%	0.185	(1.39)
29	Banking, Insurance, Real Estate, Trading	640	8.98%	0.171	(1.21)
24	Business Supplies and Shipping Containers	68	54.47%	0.165	(0.93)
7	Apparel	59	45.22%	0.122	(0.56)
30	Others	87	37.88%	0.120	(0.65)
11	Construction and Construction Materials	163	39.43%	0.117	(0.83)
26	Wholesale	162	33.67%	0.081	(0.66)
17	Precious Metals, Non-Metallic, and Industrial Metal Mining	34	36.41%	0.078	(0.26)
14	Electrical Equipment	96	49.58%	0.067	(0.33)
20	Utilities	154	3.46%	0.048	(0.19)
28	Restaurants, Hotels, Motels	87	19.78%	0.001	(0.00)
25	Transportation	94	27.43%	-0.010	(-0.06)
6	Consumer Goods	86	54.85%	-0.026	(-0.13)
12	Steel Works	63	46.85%	-0.119	(-0.70)
5	Printing and Publishing	63	38.10%	-0.313	(-1.61)
	Tradable Industries	1,988	54.66%	0.438***	(4.92)
	Non-tradable Industries	2,084	21.55%	0.156	(1.17)

Table 4. Possible Explanations of MNC Return Premium

This table examines the possible channels of MNC return premium. In Panel A, we include explanations as additional controls in the Fama-MacBeth regression. In Panel B and C, we use a two-stage approach, detailed in section III.C. For the first stage, in each period *t*, we project MNC dummy on a proxy by running a cross-sectional regression: $MNC_{i,t}=a_t+b_tProxy_{i,t}+e_{i,t}$. We obtain the coefficients, $\hat{a}_t, \hat{b}_t$, t-stat of $\hat{b}_t$ and R^2. We then decompose the MNC dummy in period t+1, $MNC_{i,t+1}$, into $XMNC_{i,t+1}$ and $EMNC_{i,t+1}$, where $XMNC_{i,t+1}= \hat{a}_t + \hat{b}_t proxy_{i,t+1}$, $EMNC_{i,t+1}= MNC_{i,t+1} - XMNC_{i,t+1}$. For idiosyncratic volatility, idiosyncratic skewness, default probability, and b (FX), we run the first stage regression by month. For gross profit, industry diversification, and industry concentration, we run the first stage regression by fiscal year. For % foreign holding, we run the first stage regression by quarter. For the second stage, we adopt our baseline Fama-MacBeth regression except that we replace MNC dummy with XMNC and EMNC obtained from first stage, i.e. $exret_{i,t}=c_t+d_tXMNC_{i,t-1}+e_tEMNC_{i,t-1}+f_t'Controls_{i,t-1}+u_{i,t}$. We then calculate the variance explained by XMNC = var(d*XMNC)/var(exret) and the variance explained by EMNC = var(e*EMNC)/var(exret). Panel A reports the time-series average of the coefficient and t-stat on each proxy and R^2 from the first stage regressions. The last column "All Variables" reports the results from the regression including all proxies except % of foreign holding as independent variables. To save space, we do not report the time-series average of b and t (b) of each variable. Panel B presents the Fama-MacBeth regression results from the second stage regressions. The time-series averages of the variance explained by XMNC and EMNC are reported below the regression results. T-statistics, adjusted for serial correlation using Newey and West (1987) standard errors with three lags, are presented in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels.

Panel A. First Approach of Additional Controls

	I	II	III	IV	V	VI	VIII	VIII	IX
Intercept	1.750***	1.937***	0.906*	0.944*	1.360*	1.193**	1.385***	1.073	1.856***
	(3.80)	(3.29)	(1.94)	(1.75)	(1.91)	(2.30)	(2.60)	(1.52)	(3.68)
MNC Dummy	0.266***	0.254***	0.308***	0.215***	0.181***	0.272***	0.270***	0.243**	0.163***
	(5.51)	(5.18)	(5.72)	(4.46)	(3.84)	(5.65)	(5.51)	(2.34)	(3.03)
Ln(Size)	-0.185***	-0.216***	-0.123***	-0.139***	-0.120***	-0.143***	-0.150***	-0.173***	-0.211***
	(-5.45)	(-5.59)	(-3.36)	(-3.39)	(-3.01)	(-3.48)	(-3.66)	(-2.66)	(-6.22)
B/M	0.294***	0.332***	0.350***	0.326***	0.305***	0.312***	0.299***	0.144***	0.342***
	(8.08)	(8.30)	(7.86)	(8.36)	(7.57)	(8.15)	(7.99)	(3.55)	(8.24)
Prev. 6-Month Ret.	0.003**	0.004**	0.007***	0.003**	0.002	0.003**	0.003*	0.001	0.005***
	(2.18)	(2.53)	(4.28)	(2.02)	(1.62)	(2.16)	(1.84)	(0.29)	(3.26)
b(MKT)	0.043	-0.012	0.008	0.005	0.019	-0.001	0.006	-0.068	0.058
	(0.79)	(-0.20)	(0.12)	(0.08)	(0.31)	(-0.02)	(0.10)	(-0.47)	(1.00)
b(SMB)	-0.053**	-0.065***	-0.058**	-0.052**	-0.054**	-0.054**	-0.055**	-0.054	-0.060**
	(-2.32)	(-2.66)	(-2.24)	(-2.13)	(-2.22)	(-2.20)	(-2.22)	(-1.14)	(-2.56)
b(HML)	0.009	0.020	0.002	0.023	0.008	0.024	0.023	0.065	-0.022
	(0.40)	(0.71)	(0.07)	(0.86)	(0.30)	(0.86)	(0.84)	(0.99)	(-0.84)
b(FX)	-0.004	-0.010	-0.005	-0.006	-0.006	-0.005	-0.004	0.012	-0.002
	(-0.29)	(-0.78)	(-0.38)	(-0.46)	(-0.48)	(-0.41)	(-0.32)	(0.39)	(-0.17)
Idio. Volatility	-0.010***								-0.012***
	(-4.54)								(-5.68)
Idio. Skewness		-0.499***							-0.461***
		(-3.26)							(-3.27)
Default Prob.			-2.738***						-1.648***
			(-5.16)						(-3.28)
Gross Profit				0.795***					0.558***
				(5.91)					(4.57)
Asset Growth					-0.783***				-0.718***
					(-9.82)				(-7.21)
Ind. Diversification						0.033			-0.016
						(0.56)			(-0.28)
Ind. Concentration							-0.125		-0.069
							(-1.30)		(-0.65)
% Foreign Holding								2.675*	
								(1.89)	
Industry Dummies	Y	Y	Y	Y	Y	Y	Y	Y	Y
Start Date	197302	197302	197302	197302	197302	197302	197307	200007	197307
End Date	201312	201201	201101	201312	201312	201312	201312	201312	201101
N	491	491	468	456	486	491	491	162	451
Adjusted R^2	5.90%	6.60%	6.90%	5.60%	5.90%	5.50%	5.50%	6.70%	7.80%

Panel B. Two Stage Approach: the First Stage

	I Idiosyncratic Volatility	II Idiosyncratic Skewness	III Default Probability	IV Gross Profit	V Asset Growth	VI Industry Diversification	VII Industry Concentration	VIII % of Foreign Holding	IX b(FX)	X All
b	-0.002	-0.175	-0.490	0.371	-0.025	0.196	0.131	3.463	0.001	
t(b)	-37.430	-52.363	-17.706	17.574	-2.916	15.637	15.386	32.853	1.404	
R^2	0.98%	4.04%	0.95%	4.66%	0.20%	4.14%	0.38%	5.88%	0.08%	12.07%

Panel C. Two Stage Approach: the Second Stage

	I Idio. Volatility	II Idio. Skewness	III Default Probability	IV Gross Profit	V Asset Growth	VI Industry Div.	VII Industry Con.	VIII % of Foreign Holding	IX b(FX)	X All
Intercept	-3.215	3.394	-4.114	0.636	1.590	1.292**	1.720*	0.993	9.289	-0.052
	(-1.24)	(0.80)	(-1.28)	(1.10)	(0.17)	(2.51)	(1.69)	(1.41)	(1.36)	(-0.09)
XMNC	12.968*	-3.790	18.173*	2.445***	2.600	0.314	-1.059	0.945**	-29.030	1.558***
	(1.89)	(-0.38)	(1.77)	(5.38)	(0.09)	(1.03)	(-0.58)	(2.27)	(-1.34)	(5.27)
EMNC	0.266***	0.254***	0.312***	0.210***	0.178***	0.267***	0.269***	0.235**	0.272***	0.173***
	(5.50)	(5.17)	(5.80)	(4.35)	(3.73)	(5.51)	(5.37)	(2.22)	(5.59)	(3.16)
Ln(Size)	-0.187***	-0.219***	-0.123***	-0.145***	-0.127***	-0.150***	-0.149***	-0.180***	-0.144***	-0.139***
	(-5.49)	(-5.72)	(-3.37)	(-3.54)	(-3.16)	(-3.65)	(-3.59)	(-2.75)	(-3.53)	(-3.58)
B/M	0.291***	0.328***	0.346***	0.313***	0.300***	0.299***	0.296***	0.128***	0.308***	0.375***
	(8.11)	(8.32)	(7.84)	(8.22)	(7.86)	(8.00)	(7.78)	(3.29)	(8.14)	(8.41)
Prev. 6-Month Ret.	0.003**	0.004**	0.007***	0.003*	0.002	0.003*	0.003*	0.000	0.003**	0.007***
	(2.15)	(2.51)	(4.26)	(1.71)	(1.33)	(1.86)	(1.95)	(0.15)	(2.11)	(4.03)
b(MKT)	0.044	-0.012	0.007	0.010	0.025	0.005	0.010	-0.076	-0.001	-0.022
	(0.80)	(-0.19)	(0.10)	(0.17)	(0.41)	(0.08)	(0.16)	(-0.52)	(-0.01)	(-0.34)
b(SMB)	-0.054**	-0.066***	-0.058**	-0.054**	-0.055**	-0.056**	-0.056**	-0.040	-0.053**	-0.059**
	(-2.34)	(-2.68)	(-2.25)	(-2.20)	(-2.23)	(-2.26)	(-2.22)	(-0.87)	(-2.17)	(-2.31)
b(HML)	0.009	0.021	0.002	0.022	0.006	0.023	0.024	0.060	0.024	0.009
	(0.40)	(0.72)	(0.08)	(0.81)	(0.24)	(0.82)	(0.86)	(0.91)	(0.87)	(0.32)
b(FX)	-0.004	-0.010	-0.005	-0.005	-0.006	-0.005	-0.005	0.011	0.002	-0.005
	(-0.31)	(-0.79)	(-0.37)	(-0.43)	(-0.53)	(-0.38)	(-0.36)	(0.36)	(0.99)	(-0.38)
Industry Dummies	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
N	490	467	455	486	486	486	474	159	490	450
Adjusted R^2	5.90%	6.50%	6.90%	5.60%	5.80%	5.50%	5.30%	6.70%	5.50%	6.80%

Table 5. Summary Statistics: Global Sample

This table reports the summary statistics of the global sample. Panel A presents the number of MNC and domestic firms, % of MNCs, % of globally accessible firms and market capitalization by country. The global sample includes firms from 23 developed markets as defined by MSCI. The sample period is from January 1990 to December 2013. For each country in each year, we obtain the number of MNC and domestic firms, % of MNCs and % of globally accessible firms, market capitalization (in $millions) of MNC and domestic firms, and % of MNCs in terms of market capitalization. We then report the time-series average over the sample period for each country. Panel B presents the summary statistics for the global sample. All variables are defined in Appendix. All observations are at monthly frequency. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels.

Panel A. % of MNCs

	Number of Firms				Market Capitalization (in $Millions)		
Country	**MNC**	**Domestic**	**% of MNCs**	**% of Globally Accessible**	**MNC**	**Domestic**	**% of MNCs**
Canada	153.29	856.75	24.25%	67.53%	3075.07	558.03	78.36%
France	76.96	497.38	12.62%	96.88%	6076.55	1622.49	77.68%
Germany	65.44	575.22	9.66%	86.00%	9697.88	1172.27	85.66%
Italy	26.75	212.25	11.23%	49.34%	4708.89	2282.11	65.03%
Japan	528.74	2546.21	16.55%	26.77%	3355.84	761.58	81.80%
United Kingdom	445.75	838.67	34.56%	98.96%	3249.43	559.94	85.65%
United States	1810.25	3298.17	36.92%	100.00%	4931.33	1334.72	78.90%
Australia	186.21	591.92	30.92%	46.39%	1441.92	466.47	75.77%
Austria	23.00	59.17	28.07%	65.95%	2332.20	931.81	71.87%
Belgium	18.40	87.90	17.22%	100.00%	7613.54	1464.39	83.05%
Denmark	15.82	136.91	10.31%	26.15%	1692.89	1039.61	62.32%
Finland	16.33	99.33	14.11%	54.37%	1210.25	1602.17	40.06%
Hong Kong	229.13	386.17	40.20%	99.79%	1516.92	1130.28	53.42%
Ireland	19.71	33.50	36.59%	85.89%	1746.67	610.01	75.42%
Israel	13.82	194.47	9.45%	45.98%	2262.72	407.37	80.97%
Netherlands	20.77	111.59	17.00%	99.47%	10058.83	2845.73	78.21%
New Zealand	19.77	52.27	28.86%	35.19%	577.28	350.90	60.28%
Norway	16.59	152.00	9.36%	48.15%	1905.81	959.26	65.83%
Portugal	10.11	34.11	23.06%	100.00%	3603.06	1355.29	70.22%
Singapore	98.58	258.63	37.91%	100.00%	1239.05	450.69	69.94%
Spain	22.88	99.50	18.64%	61.38%	9953.97	3623.27	71.81%
Sweden	26.12	264.82	8.13%	39.40%	2599.36	1170.94	68.63%
Switzerland	29.65	172.20	13.87%	61.74%	10965.32	3088.53	78.75%

Panel B. Firm Characteristics

	Domestic				MNC				Difference (MNC-Domestic)	
Variable	**N**	**Mean**	**Median**	**Std**	**N**	**Mean**	**Median**	**Std**	**Mean**	**t-value**
Ln(Size)	2,413,208	4.676	4.506	1.911	894,571	6.084	6.009	2.111	1.408***	552.44
B/M	2,413,208	0.954	0.683	1.236	894,571	0.803	0.547	1.798	-0.151***	-73.37
Previous 6-Month Return	2,413,208	7.184	4.704	40.988	894,571	7.517	6.332	37.820	0.334***	6.97
Idiosyncratic Volatility	2,413,208	0.338	0.272	0.250	894,571	0.305	0.250	0.210	-0.033***	-120.56
Gross Profit	2,191,287	0.255	0.205	0.840	867,590	0.331	0.293	0.263	0.076***	119.80
Globally Accessible	2,413,208	0.720	1.000	0.449	894,571	0.902	1.000	0.297	0.182***	426.45
b(WMKT)_CAPM	2,413,208	-0.056	-0.048	1.470	894,571	-0.007	-0.048	1.431	0.049***	27.28
b(MKT)_CAPM	2,413,208	0.655	0.829	1.231	894,571	0.855	0.829	1.235	0.200***	131.11
b(WMKT)_FF3	2,413,208	0.022	-0.001	2.244	894,571	0.029	-0.001	2.155	0.007***	2.78
b(WSMB)_FF3	2,413,208	0.067	0.062	3.479	894,571	0.047	0.037	3.284	-0.020***	-4.88
b(WHML)_FF3	2,413,208	0.026	0.013	4.230	894,571	0.041	0.026	4.021	0.015***	2.90
b(MKT)_FF3	2,413,208	0.882	0.848	1.751	894,571	0.988	0.964	1.720	0.106***	49.66
b(SMB)_FF3	2,413,208	0.587	0.497	2.062	894,571	0.540	0.410	2.060	-0.046***	-18.23
b(HML)_FF3	2,413,208	0.159	0.097	2.494	894,571	0.136	0.091	2.483	-0.023***	-7.53
b(FX)	2,413,208	-0.329	-0.398	2.400	894,571	-0.112	-0.147	2.176	0.217***	78.30

Table 6. Fama-MacBeth Regression: Global Sample

This table reports the Fama-MacBeth regression results for global sample. The sample period is from January 1990 to December 2013. The global sample includes firms from 23 developed markets as defined by MSCI. G6 sample includes firms from G7 countries excluding U.S. Non G7 sample includes firms from the other 16 developed markets. A firm is defined as MNC if it reports non-missing foreign income (Compustat item: PIFO, Worldscope item: WC08741) or foreign income taxes (Compustat item: TXFO) in any of the previous three years. Panel A reports the Fama-MacBeth regression results. Panel B presents the performance of MNC and Domestic portfolios from time-series regressions. In each month, we form portfolios based on MNC status in the previous month and calculate the value-weighted excess returns, global CAPM alpha, and global FF-3 alpha. Global CAPM alpha is the intercept from a regression of monthly excess return on global market factor. Global FF-3 alpha is the intercept from a regression of monthly excess return on global Fama-French three factors. All variables are defined in Appendix. T-statistics, adjusted for serial correlation using Newey and West (1987) standard errors with three lags, are presented in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels.

Panel A. Fama-MacBeth Regression Result

	I	II	III	IV	V	VI	VII	VIII
	Global	**US**	**G6**	**Non G7**	**Global**	**US**	**G6**	**Non G7**
Intercept	1.128***	1.146**	0.186	0.939*	1.248***	1.296***	0.194	0.968**
	(2.80)	(2.29)	(0.38)	(1.95)	(3.14)	(2.62)	(0.40)	(2.05)
MNC Dummy	0.231***	0.262***	0.193***	-0.004	0.231***	0.266***	0.184***	0.004
	(4.49)	(3.96)	(3.10)	(-0.07)	(4.45)	(4.03)	(2.94)	(0.06)
Ln(Size)	-0.129***	-0.120**	-0.095***	-0.140***	-0.135***	-0.126***	-0.097***	-0.145***
	(-3.94)	(-2.48)	(-2.97)	(-3.28)	(-4.26)	(-2.65)	(-3.09)	(-3.43)
B/M	0.256***	0.143***	0.344***	0.378***	0.253***	0.138***	0.341***	0.374***
	(8.15)	(3.95)	(7.80)	(7.33)	(8.07)	(3.87)	(7.71)	(7.41)
Prev. 6-Month Ret.	0.007***	0.005**	0.008***	0.013***	0.007***	0.005**	0.008***	0.013***
	(3.63)	(2.29)	(3.94)	(5.32)	(3.53)	(2.35)	(3.88)	(5.40)
b(WMKT)	-0.006	-0.062	0.018	0.057	-0.005	-0.064	0.020	0.067
	(-0.11)	(-0.74)	(0.33)	(0.96)	(-0.13)	(-0.77)	(0.48)	(1.22)
b(WSMB)					-0.054***	-0.059	-0.051**	-0.070**
					(-3.38)	(-1.62)	(-2.31)	(-2.28)
b(WHML)					0.001	0.037	0.006	-0.027
					(0.08)	(1.24)	(0.42)	(-1.39)
b(MKT)	0.010	-0.026	0.036	0.028	0.013	-0.019	0.027	0.020
	(0.14)	(-0.25)	(0.54)	(0.30)	(0.30)	(-0.19)	(0.55)	(0.26)
b(SMB)					-0.111***	-0.119***	-0.077**	-0.097*
					(-6.09)	(-3.28)	(-2.24)	(-1.88)
b(HML)					0.002	0.054	0.004	-0.000
					(0.10)	(1.15)	(0.21)	(-0.01)
b(FX)	-0.008	-0.006	-0.007	-0.017	-0.019	-0.033	-0.009	-0.041*
	(-0.68)	(-0.45)	(-0.42)	(-0.98)	(-1.30)	(-1.62)	(-0.45)	(-1.67)
Industry Dummies	Y	Y	Y	Y	Y	Y	Y	Y
Country Dummies	Y	N	Y	Y	Y	N	Y	Y
N	288	288	288	288	288	288	288	288
Adjusted R^2	9.00%	5.90%	9.80%	12.10%	9.00%	6.20%	10.00%	12.70%

Panel B. Time-Series Regression Result

	Full Sample			MNC-Domestic		
	MNC	**Domestic**	**MNC-Domestic**	**US**	**G6**	**Non-G7**
Excess Return	1.175***	0.983***	0.192	0.149	0.175	0.053
	(3.82)	(3.64)	(1.64)	(1.40)	(1.28)	(0.28)
Global CAPM Alpha	0.503***	0.182***	0.321**	0.020	0.391**	-0.019
	(5.87)	(3.01)	(2.36)	(0.18)	(2.45)	(-0.17)
Global FF-3 Alpha	0.536***	0.103*	0.433***	0.165	0.419**	-0.065
	(6.23)	(1.80)	(3.21)	(1.56)	(2.58)	(-0.58)

Table 7. Fama-MacBeth Regression Results: Further Tests in Global Sample

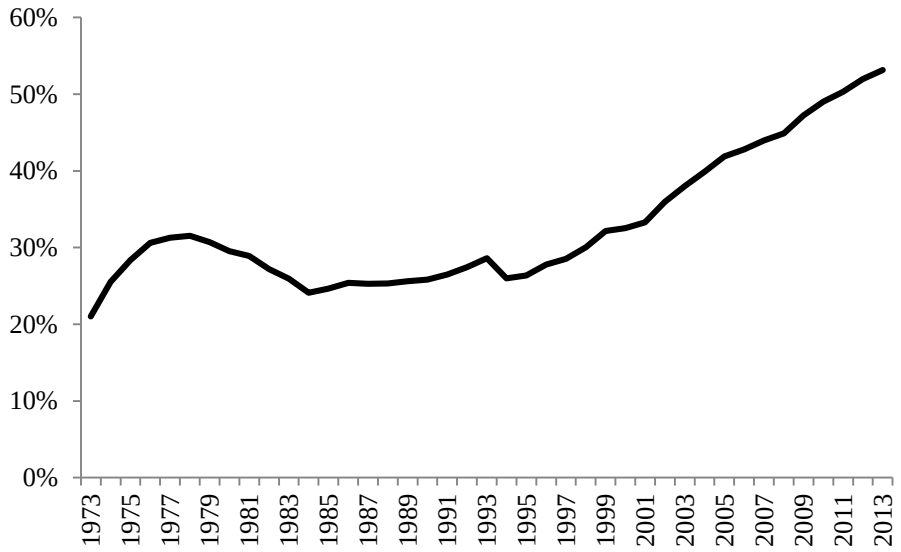
This table reports the Fama-MacBeth regression results with additional controls for global sample. The sample period is from January 1990 to December 2013. A firm is globally accessible if it has stocks listed on any of the following markets: (i) the U.S., which includes NYSE/AMEX, NASDAQ, and the Non-NASDAQ OTC markets; (ii) the U.K., which includes the London Stock Exchange, London OTC Exchange, London Plus Market, and SEAQ International; (iii) Europe, which includes Euronext at Amsterdam, Brussels, Lisbon, Paris, and EASDAQ; (iv) Germany in which the Frankfurt Stock Exchange is located; (v) Luxembourg in which the Luxembourg Stock Exchange is located; (vi) Singapore, which includes the Singapore Stock Exchange, Singapore OTC Capital, and Singapore Catalist; and (vii) Hong Kong in which the Hong Kong Stock Exchange is located (Karoyli and Wu, 2012). All regressions include industry dummies. T-statistics, adjusted for serial correlation using Newey and West (1987) standard errors with three lags, are presented in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels.

	I	II	III	IV
Intercept	1.428***	1.089***	0.805**	0.714**
	(4.46)	(2.61)	(2.24)	(2.10)
MNC Dummy	0.226***	0.195***	0.274***	0.212***
	(4.43)	(3.59)	(3.71)	(3.00)
Ln(Size)	-0.145***	-0.138***	-0.176***	-0.171***
	(-5.31)	(-4.21)	(-4.59)	(-4.97)
B/M	0.250***	0.277***	0.268***	0.288***
	(8.14)	(8.32)	(6.58)	(7.10)
Previous 6-Month Return	0.007***	0.006***	0.007***	0.007***
	(3.82)	(3.49)	(3.27)	(3.67)
b(WMKT)	-0.002	-0.004	-0.005	-0.004
	(-0.08)	(-0.10)	(-0.14)	(-0.11)
b(WSMB)	-0.055***	-0.052***	-0.047***	-0.048***
	(-3.56)	(-3.11)	(-2.72)	(-2.66)
b(WHML)	-0.001	-0.003	0.006	0.000
	(-0.06)	(-0.22)	(0.49)	(0.02)
b(MKT)	0.019	0.017	0.010	0.018
	(0.51)	(0.40)	(0.23)	(0.45)
b(SMB)	-0.112***	-0.109***	-0.117***	-0.116***
	(-6.20)	(-5.60)	(-5.74)	(-5.41)
b(HML)	-0.001	-0.003	0.013	0.004
	(-0.10)	(-0.17)	(0.73)	(0.26)
b(FX)	-0.017	-0.019	0.006	0.005
	(-1.29)	(-1.34)	(0.24)	(0.24)
Idiosyncratic Volatility	-0.353			-0.130
	(-1.14)			(-0.36)
Gross Profit		0.615***		0.628***
		(7.16)		(5.18)
Globally Accessible			0.590***	0.540**
			(2.67)	(2.45)
Industry Dummies	Y	Y	Y	Y
Country Dummies	Y	Y	N	N
Adjusted R^2	9.30%	9.10%	5.20%	6.00%

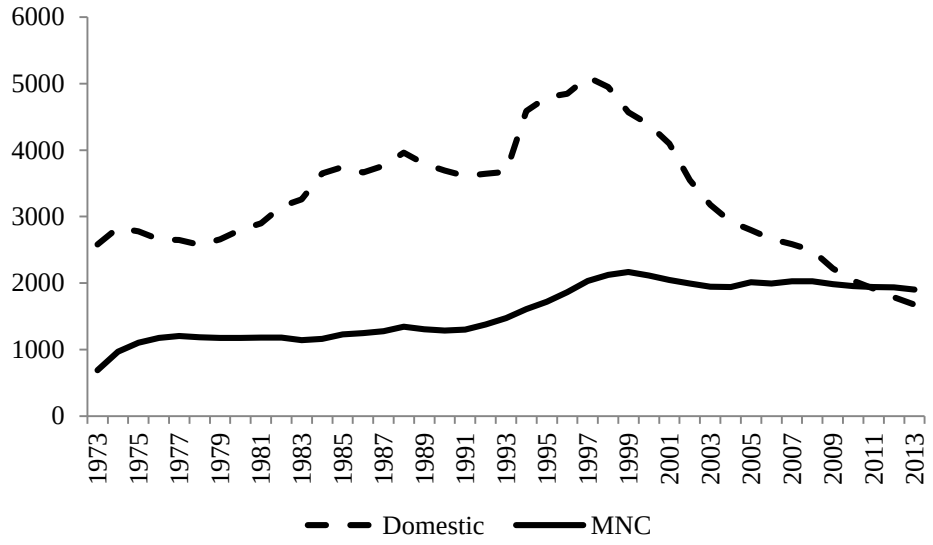
Figure 1. Number and Market Capitalization of MNC and Domestic Firms (U.S. Sample)

This figure shows the number and market capitalization of MNC and domestic firms over time. In each year over the sample period, we obtain the number and average market capitalization of MNC and domestic firms, and calculate % of MNCs. Panel A presents the percentage % of MNC in terms of numbers. Panel B presents the number of MNC (solid line) and domestic firms (dashed line). Panel C presents the average market capitalization in $ millions of MNC (solid line) and domestic firms (dashed line).

Panel A. % of MNC



Panel B. Number of MNC and Domestic Firms



Panel C. Market Capitalization (in $ Millions) of MNC and Domestic Firms

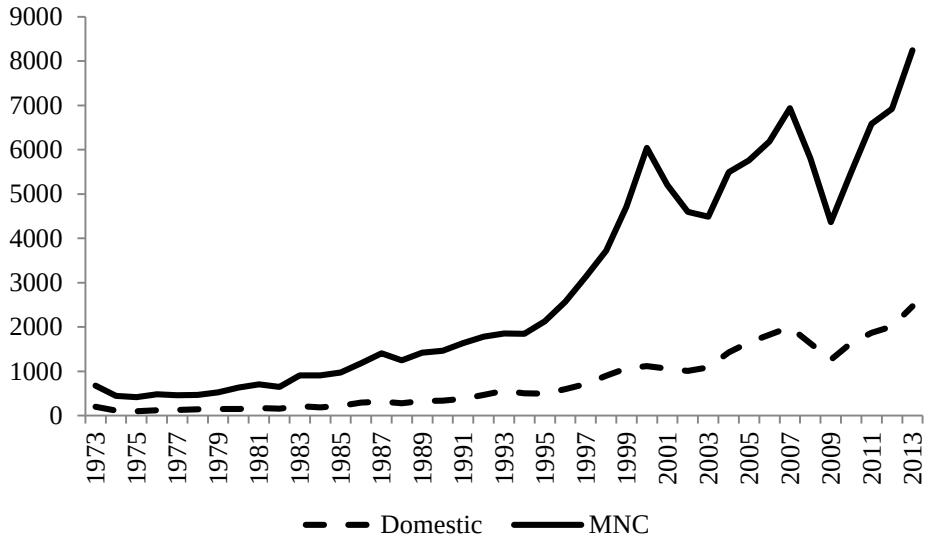
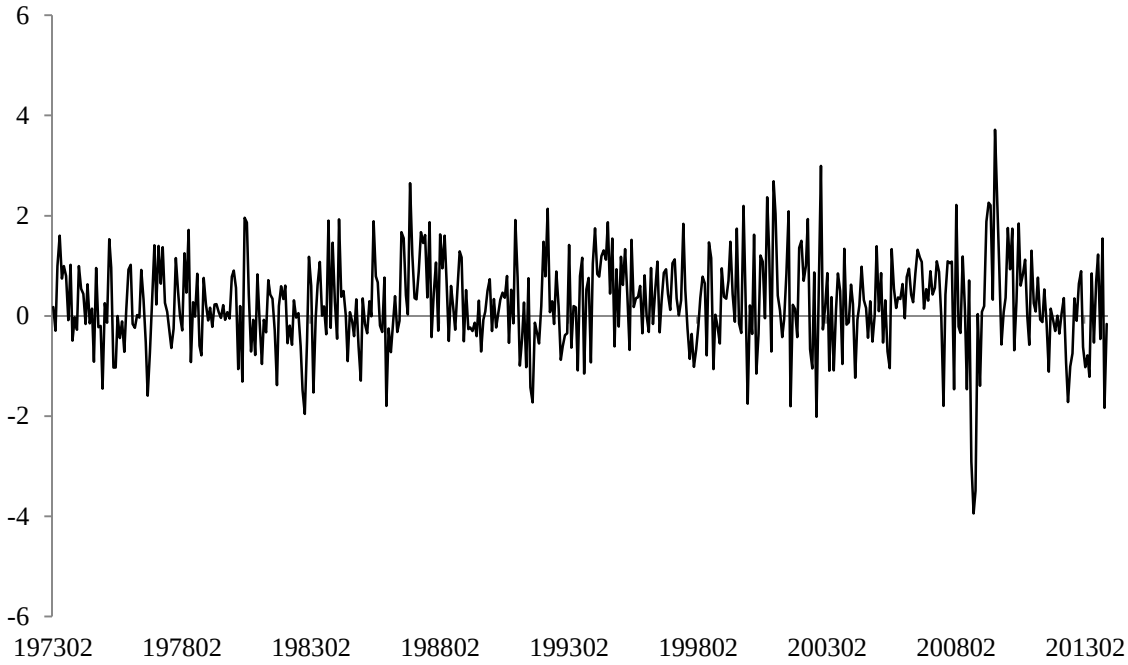


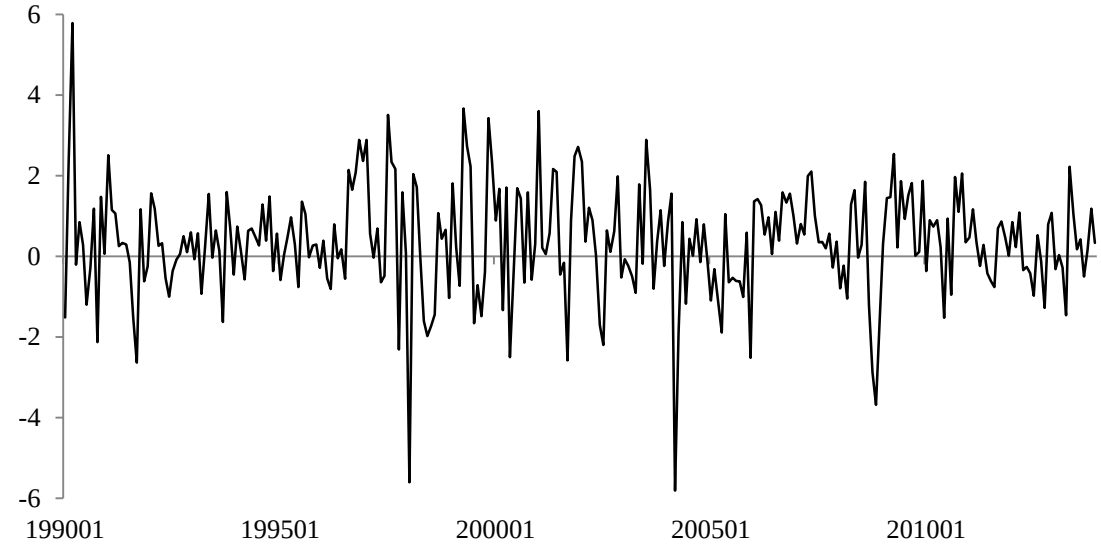
Figure 2. Time-Series Plot of MNC Coefficient (U.S. and Global Sample)

This figure plots the time-series coefficients on MNC dummy from Fama-MacBeth regression for U.S. and global sample. Panel A shows the coefficients for U.S. sample (Table 2, Model I). The sample period is from February 1973 to December 2013. Panel B shows the coefficients for global sample (Table 6, Model I). The sample period is from January 1990 to December 2013.

Panel A. U.S. Sample



Panel B. Global Sample



Appendix. Variable Description

Variable	Description
MNC Dummy	For U.S. firms, it equals 1 if the firm reports non-missing foreign income (Compustat item: PIFO) or foreign income taxes (Compustat item: TXFO) in any of the previous three years, and 0 otherwise. For non-U.S. firms, it equals 1 if the firm reports non-missing foreign income (Worldscope item: WC08741) in any of the previous three years, and 0 otherwise.
Excess Return	U.S. dollar-denominated stock return (from Datastream) minus U.S. T-bill rate (from Kenneth R. French Data Library), multiplied by 100.
Ln (Size)	The natural logarithm of market value, in $ millions.
B/M	Book equity divided by market value of equity. For B/M from July of year t to June of year t + 1, we use market value from July of year t to June of year t + 1 and match with book equity at the end of year t − 1.
Previous 6-Month Return	The sum of monthly returns in the previous 6 months.
Idiosyncratic Volatility	For U.S. sample, idiosyncratic volatility is the annualized volatility of the residuals from the regressions using Fama-French three factor model (from Ang et al. (2009)). For the global sample, idiosyncratic volatility is estimated from the regressions using global-local Fama-French three factor model as in Bekaert, Hodrick and Zhang (2009).
Idiosyncratic Skewness	Expected idiosyncratic skewness, from Brian Boyer's website http://marriottschool.net/emp/boyer/Research/skewdata.html
Default Probability	Measure of default risk from Vassalou and Xing (2004).
b(MKT), b(SMB), b(HML), b(WMKT), b(WSMB), b(WHML)	For U.S. sample, b(MKT), b(SMB), and b(HML), are the loadings on MKT, SMB, and HML factors, respectively, from the monthly cross-sectional regression of daily excess return on Fama-French three factors (from Kenneth R. French Data Library). For the global sample, b(MKT) , b(SMB), b(HML), b(WMKT) , b(WSMB), and b(WHML) are the loadings on the local and global factors, respectively, from the monthly cross-sectional regression of daily excess return on global and local MKT factors or from the monthly cross-sectional regression of daily excess return on global and local Fama-French three factors. Local MKT factor is the value-weighted return of all firms in the country, where the weight equals the lagged market value of each stock in that country. Global MKT factor, WMKT, is the value weighted sum of local MKT factors of all countries, where the weight equals the lagged market value of all stocks in each country. To obtain local SMB factors at country level, we sort all firms in that country into three size groups in each month based on 6-month lagged market value and calculate SMB as the value-weighted return difference between firms in size group 1 (smallest) and size group 3 (largest). Global SMB factor, WSMB, is the value weighted sum of local SMB factors of all countries, where the weight equals the lagged market value of all stocks in each country. Similarly, local HML factor is the value-weighted return difference between firms in B/M group 3 (highest) and B/M group 1 (lowest) and global HML factor, WHML, is

	the value weighted sum of local HML factors of all countries, where the weight equals the lagged market value of all stocks in each country.
b(FX)	For U.S. sample, b(FX) is the loading on foreign exchange factor, FX, from the monthly cross-sectional regression of daily excess return on MKT factor and FX factor. For the global sample, b(FX) is the loading on FX factor from the monthly cross-sectional regression of daily excess return on local MKT factor, global MKT factor WMKT and FX factor. FX factor is the return of trade weighted U.S. dollar index (major currencies) from Federal Reserve Bank of St. Louis.
Gross Profit	Revenues minus cost of goods sold (REVT − COGS) scaled by total assets (AT) (from Novy-Marx (2013)).
Industry Diversification	An indicator variable equal to one if the firm has more than one segment (from Compustat Segment).
Industry Concentration	A sales-based Herfindahl index (Hou and Robinson (2006)). Industry Concentration = $\sum_{i=1}^{N} s_{ij}^2$, where s_{ij} is the market share (in terms of sales) of firm *i* in industry *j* (from Compustat Segment). Industries are classified based on three-digit SIC code. A larger value implies higher industry concentration.
Asset Growth	The change in total assets (AT) scaled by lagged total assets.
% Foreign Holding	The percentage of foreign institutional holdings out of the total shares outstanding (from quarterly 13-F filings).