

Multinationals and Stock Return Comovement

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Abstract

We find that when a domestic firm becomes a multinational (MNC), its returns comove more with existing multinational firms and less with purely domestic firms in the year post MNC initiation. This result is robust to a propensity score matching method and an exogenous shock. The evidence on turnover comovement and changes in mutual funds' holdings of these MNC initiators further provide support of investor preference for multinationals as a style investment. Moreover, MNC initiators with larger foreign sales experience larger shifts in return comovement. Finally, we find that the effect of MNC initiation on return comovement is relatively weaker for a more recent period.

JEL Classification Codes: G10, G14, G32

Keywords: Multinational, Diversification, Comovement, Clientele, Style Investing

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1. Introduction

Market-wide information has traditionally been viewed as the main driver of stock prices comoving together (e.g., Roll, 1988; Eun, Wang, and Xiao, 2015). However, many studies find significant evidence that stock return comovement cannot totally be expounded by fundamental dynamics (e.g., Shiller, 1989; Lee, Shleifer, and Thaler, 1991; Froot and Dabora, 1999). Beyond fundamental risks, Barberis and Shleifer (2003) find that ‘investing style’ may explain return comovements in financial markets. They explicate that due to limited ability to process information for thousands of stocks, investors tend to firstly divide stocks into different groups and then trade stocks in the same group together rather than selecting individual stocks. As a result, this style investing leads to return comovements among stocks within the same investment group (e.g., Barberis, Shleifer, and Wurgler, 2005; Greenwood, 2008; Boyer, 2011; Kumar, Page, and Spalt, 2016; Hameed and Xie, 2019).

In this study, we investigate whether stock prices of a new multinational comove more with the group of existing multinationals, and whether this stock comovement is due to investors consider multinational (MNC, hereafter) as a style for investing. While investors could hold an internationally diversified portfolio by buying stocks of firms located in different countries, they may prefer having international exposure via holding multinational corporations of their own country. Rowland and Tesar (2004), Cai and Warnock (2006), and Berrill, Kearney, and O’Hagan-Luff (2019) among others have shown the evidence on diversification benefits by investing in MNCs in the U.S. market. Literature have also discussed several other reasons underlying this preference for MNCs, including control on capital flows, trading costs, tax regulations, information asymmetry, and familiarity (e.g., Agmon and Lessard, 1977; Errunza and Senbet, 1981; Mathur and Hanagan, 1983; Galbraith and Kay, 1986; Michel and

Shaked, 1986; French and Poterba, 1991)¹. Cai and Warnock (2006) find a positive relationship between foreign sales and the proportion of institutional investors in the cross-section of U.S. firms in 1994 and 2000. Errunza, Hogan, and Hung (1999) find that including 30 multinationals, close-end country funds, or American Depositary Receipts in the portfolios of U.S. market indices and industry portfolios could enhance investor returns.

Using 1,173 U.S. firms that switch from a purely domestic firm (DOM, hereafter) to a MNC firm based on their foreign sale data, we find that the returns of these MNC initiators become less covariant with their previous peers (i.e., other DOM stocks) and comove more with their new peers (i.e., existing MNC stocks).² These changes in return comovement are statistically significant and economically meaningful. Specifically, the return comovement of MNC initiators with domestic firms decreases from 0.573 to 0.255, a difference of -0.318 statistically significant at the 1% level. Conversely, MNC initiators register a substantial increase in return comovement with multinational firms from 0.235 to 0.439, and this difference of 0.204 is also statistically and economically significant. In addition, beyond the initiation year, we also find that the return comovement of MNC initiators with multinational firms continues to increase to 0.814 in year $t+2$ and reaches the stability while their return comovement with domestic firms are stable after the event year. The results are consistent with slow adjustments in the investor clientele, and it takes more than one year to complete.³

¹ See also Ardalan (2019) for a literature review on factors that affect investors' bias against holding foreign-traded stocks.

² Aggarwal, Berrill, Hutson, and Kearney (2011) summarise different definitions of the 'Multinational' from 393 articles and show that majority of studies (about 84%) have defined multinational firms based on their subsidiaries or foreign sales. Due to data availability, we define a firm as a multinational based on the existence of foreign sales in its financial reports. However, we also perform a robustness check using the presence of overseas subsidiaries for a smaller sample, and we find consistent results. We present these results in Table A1 in the Appendix.

³ To further support the investor clientele effect on MNCs or DOMs, we note that there can be a group of investors prefer not to invest in MNCs due to the potential risks associated with exchange rates and agency costs for MNCs (e.g., Doukas and Pantzalis, 2003; Faff and Marshall, 2005; Dyreng, Hanlon, and Maydew, 2012; Gu, 2017). We test for this possibility by separating our analyses into the periods of low and high exchange rate volatility. We calculate the yearly historical volatility of the USD index (DXY) and classify the high and low volatility periods based on its median value. We present this robustness analysis in Table A2 in the Appendix. Overall, we find that an increase in the return comovement of MNC initiators with existing MNCs is statistically insignificant during the regime of high exchange rate volatility. Meanwhile, in the regime of low exchange rate volatility, this increase

Our results are not due to changes in fundamental factors. We prove this important issue using two different approaches. Firstly, we apply the propensity score matching (PSM) method to construct a set of control DOM firms that share the same fundamental characteristics and propensity to become multinationals. We find no significant change in return comovement of the control firms. The results are consistent with our expectation that the reported changes in return comovement are driven by style investing, not by fundamental risks. Secondly, we consider year 1997, Asian economic shock, as an exogenous shock to a U.S. firm's international expansion choices to distinguish the clientele effect from that of fundamental factors. Our data show that during the two-year period after the shock (i.e., 1998-1999), the number of MNC initiators increases sharply and that the MNC initiators experience a remarkably larger increase (decrease) in return comovement with multinational (domestic) firms than those in other years.

We next examine investor trading activities surrounding the year of MNC initiation to provide further evidence on investor MNC preference. That is, if investors trade stocks based on their international exposure (or lack thereof), their trading should lead to common movements in the trading activities of stocks within the same groups. Our results for turnover show that MNC initiators exhibit a significant increase (decrease) in turnover comovement with multinational (domestic) firms. In addition, our analysis of U.S. mutual fund holdings shows that after a purely domestic firm switches to a multinational one, DOM-favored mutual funds decrease their holding of the newly multinational stock whereas MNC-favored mutual funds do the opposite, increasing their holding of this MNC initiator. Finally, our analysis of mutual fund flows suggests that mutual funds tend to invest their capital flows in accordance with their investors' preferences for multinational and domestic stocks. The results support our argument

is statistically significant at 1% significance level and even stronger than the baseline result (i.e., 0.285 versus 0.204).

that corporate international diversification is a style for investors' portfolio choice; hence, their trading activities in response to MNC initiations lead to return comovements.

Our findings are robust to several tests. First, return comovement changes remain significant and meaningful when we apply univariate regressions as an alternative specification to measure return comovements. This robustness check addresses the concern about bivariate regressions mentioned in Chen, Singal, and Whitelaw (2016). Second, we find that the change in return comovement differs depending on the level of foreign sale ratio, the results suggest that MNC initiations with larger foreign sale ratios yield greater shifts in return comovements. Our results do not suggest that MNC initiators with multiple foreign markets experience larger shifts in return comovement compared to those with a single foreign market. Lastly, changes in return comovement are smaller in a more recent period than an earlier period, consistent with empirical evidence in the literature that globalization makes international diversification easier and less costly (Wiersema and Bowen, 2008; Bekaert, Hodrick, and Zhang, 2009; Croitorov, Giovannini, Hohberger, Ratto, and Vogel, 2020).

We first add to the knowledge about style investing and excess return comovements. Barberis and Shleifer (2003) show that investors tend to allocate stocks into different groups and then trade stocks based on these groupings, inducing return comovements among stocks in the same group. Following this pioneering work, many studies find the existence of various style investments. For example, Barberis, Shleifer, and Wurgler (2005), Greenwood (2008), Boyer (2011); Mazouz, Mohamed, and Saadouni (2016) provide evidence that being include in an index makes the stock more attractive to investors, and the index inclusion leads to an increase in the comovement of the stock's returns with other stocks in the index. Pirinsky and Wang (2006) find that firms having their headquarters located in the same area see their stock returns comove together while Grullon, Underwood, and Weston (2014) show strong comovement among IPO stocks that are underwritten by the same lead investment bank. Style

investing research also reports significant return comovements among stocks within the similar price range, size, or book-to-market ratio (Green and Hwang, 2009; Kumar, 2009; Kumar, Page, and Spalt, 2013), and stocks with listed options (Agyei-Ampomah and Mazouz, 2011). Hameed and Xie (2019) report evidence on excess return comovements induced by dividend-paying initiations.⁴ We add to this literature by documenting that investor interest in international diversification via holding multinational firms results in a shift in excess return comovement for MNC initiators from their previous DOM peers to their new MNC peers.

We next contribute to the literature related to multinationals. Literature have shown that due to imperfect integration among international markets, it would be costly or impossible for investors to invest in foreign stocks for the benefits of international diversification (e.g., Mathur and Hanagan, 1983; Michel and Shaked, 1986; French and Poterba, 1991). If investing in multinational firms could help investors achieve their desired diversification, they would appreciate it. Agmon and Lessard (1977), Errunza and Senbet (1981), and Fatemi (1984) find that MNCs are less risky and have higher market value than their DOM counterparts. However, Michel and Shaked (1986) find that DOMs exhibit superior risk-adjusted market-based performance relative to MNCs, and Jacquillat and Solnik (1978) assert that despite some diversification benefits, MNCs are a poor substitute for international diversification via holding foreign-traded stocks. Recent research on multinationals show that the benefits of geographic diversification are conditional on the characteristics of MNCs and the markets that MNCs are expanding to (e.g., Bodnar and Weindrop, 1997; Pantzalis, Park, and Sutton, 2008; Alfaro and Chen, 2014). The results in our paper suggest that investors recognize the diversification

⁴ Li, Yin, and Zhao (2020) show that stocks with high degree of program trading see their returns comove more with each other while Li, Zhang, Feng, and An (2019) find that stocks with mutual funds in the top 10 shareholders tend to comove more. Frijns, Verschoor, and Zwinkels (2017) find that it is not fundamental components of returns but investor sentiment that mainly explain stock return comovements. The extant literature also investigates the link between style investment and return comovement among industries based on the demand of retail investors (Jame and Tong, 2014), exchange-traded funds with similar investment styles (Broman, 2016), bonds that join a new credit rating class (Raffestin, 2017), and in the credit default swap market following an inclusion to or exclusion from a CDX index (Cathcart, El-Jahel, Evans, and Shi, 2019).

benefits of MNCs and seek to include them in their portfolio, which induces return comovements between new and existing MNCs.

Our paper is also related to the extensive literature on equity home bias. Since French and Poterba (1991), many studies have documented various reasons that prevent investors from optimally diversifying their portfolios to foreign-traded stocks (e.g., Mathur and Hanagan, 1983; Michel and Shaked, 1986; Dahlquist, Pinkowitz, Stulz, and Williamson, 2003; Aggarwal, Klapper, and Wysocki, 2005; Chan, Covrig, and Ng, 2005; Gelos and Wei, 2006; Leuz, Lins, and Warnock, 2008; Anderson, Fedenia, Hirschey, and Skiba, 2011). Our study indicates that the home bias is exhibited in investor preference for multinational firms as a safe alternative way of gaining international diversification. This preference for MNCs triggers an increase in the return comovement of MNC initiators with a portfolio of existing MNC stocks and a decrease in return comovement between MNC initiators and their previous DOM counterparts. Our findings differ from the evidence on return comovements among stocks in different markets (e.g., Bekaert, Hodrick, and Zhang, 2009) or the comovement of MNC returns with global, country, and industry factors (Brooks and Negro, 2006).

The remainder of the paper is organized as follows. Section 2 presents data selection and methodology. Section 3 displays main empirical results. Section 4 reports evidence on turnover comovement and mutual funds' holding changes. Section 5 shows robustness tests. Section 6 concludes our paper.

2. Data and Methodology

We obtain foreign sales, domestic sales, and total sales of U.S based firms from Compustat Historical Segments. For foreign sales, Compustat provides IDs for each foreign market. We define an MNC initiator in year t if it is a domestic firm (i.e., no foreign sale

reported) in year $t - 2$ and $t - 1$ and a multinational firm (i.e., foreign sale reported) in year t . We obtain stock returns and other shares-related data from Centre for Research in Security Prices (CRSP) and accounting data from Compustat. Our sample includes common stocks that have share codes of 10 and 11 and trade on NYSE/Amex and Nasdaq. After we merge all related databases together, our research period is from 1979 to 2016.

In our study, we construct a sample of control firms that shares similar firm characteristics with the MNC initiators. Specifically, in each year t , we select all MNC initiators and DOM firms that have not recorded foreign sales in three consecutive years t , $t - 1$, and $t - 2$ (i.e., potential control peers). We next run a logit model on the propensity to become a multinational firm by following Choi and Jiang (2009) and Amar, He, Li, and Magnan (2016):

$$D_MNC_i = a + b_1SIZE_i + b_2LEV_i + b_3RnD_i + b_4DIV_i + b_5MB_i + b_6PROFIT_i + b_7CASH_i + b_8CFVOL_i + b_9DISTRESS_i + e_i \quad (1)$$

where D_MNC is a dummy variable that equals to one if the firm is a multinational initiator in year t , and zero if the firm is domestic firm in year t . $SIZE$ is the log of total assets (Compustat item AT); LEV is leverage measured as long-term debt (DLTT) divided by total assets; RnD is calculated as research and development expenditure (XRD) scaled by total assets; DIV is a dummy variable equal to one for dividend-paying firms and zero otherwise; MB is the market-to-book ratio calculated as the market value of equity (PRCC * CSHO) divided by total stockholders' equity (SEQ); $PROFIT$ is the return on asset ratio measured as net income (NI) divided by total assets; $CASH$ is the ratio of cash holdings (CHE) to total assets; and $CFVOL$ is the standard deviation of operating income (OANCF) over a 3-year window. $DISTRESS$ is based on Altman's (1968) Z-score and defined as a dummy variable equal to one for distressed firms and zero otherwise. Each MNC initiator is matched to a control firm that has the closest propensity to become a multinational firm. We also require the difference in the propensity

score between each MNC initiator and the matched peer to be less than 0.01⁵, and that they are in the same industry. This PSM method ensures that the control firms have similar characteristics as MNC initiators except that they do not change into MNCs in year t .

For each MNC initiator i in year t , we measure the comovements of stock i 's daily returns with daily returns of two benchmark portfolios consisting DOM and MNC stocks. The DOM benchmark portfolio includes purely domestic firms without foreign sales for three years leading to year t , i.e., years $t - 2$, $t - 1$ and t . The MNC benchmark portfolio contains multinational firms that have foreign sales every year in the same three-year window⁶. We then calculate daily equal-weighted returns for these two portfolios and denote them as BMK_DOM and BMK_MNC , respectively.⁷ The stocks in these benchmark portfolios are required to have at least 200 daily observations each year. In addition, these benchmarks are held constant when we measure the return comovement during before and after year t .

We exclude the portion of returns in the benchmark portfolios that are driven by common factors as below:

$$BMK_PF_d = a + b_1MKT_d + b_2SMB_d + b_3HML_d + b_4MOM_d + u_d \quad (2)$$

where BMK_PF_d is the benchmark portfolio return, either BMK_DOM_d or BMK_MNC_d . MKT , SMB , HML , and MOM are the Fama-French-Carhart four factors: excess market return, small-minus-big size factor, high-minus-low book-to-market factor, and momentum factor,

⁵ Alternatively, we also consider another cut-off point, requiring the difference in the propensity score between each MNC firm and its control peer to be less than 0.05. The results are robust and available upon request.

⁶ Alternatively, we consider a different condition to allocate stocks into two benchmark portfolios. First (second) portfolio includes stocks that remain domestic (multinational) in four years leading to year t (i.e., years $t - 3$, $t - 2$, $t - 1$ and t). The robust results are available upon request.

⁷ The average number of firms in the BMK_DOM and BMK_MNC portfolios is 1,482 and 1,280 firms, respectively.

respectively.⁸ We run Eq. (2) separately for the DOM and MNC benchmark portfolios by year and obtain their daily residual returns as $BMK_DOM_{res,d}$ and $BMK_MNC_{res,d}$, respectively.

To evaluate the excess return comovements of MNC initiators with the two benchmark portfolios, we estimate the following bivariate regression model within removing the effects of common risk factors:

$$RET_{i,d} = \alpha_i + \beta_{Di}BMK_DOM_{res,d} + \beta_{Mi}BMK_MNC_{res,d} + \gamma_i X_d + \varepsilon_{i,d} \quad (3)$$

where $RET_{i,d}$ is the return on MNC initiator i on day d . $BMK_DOM_{res,d}$ and $BMK_MNC_{res,d}$ are the residual returns of the DOM and MNC portfolios on day d , respectively. X_d includes the four factors in the Fama-French-Carhart model, as described in Eq. (2). β_{Di} and β_{Mi} represent the excess comovements in return between an MNC initiator and the DOM and MNC benchmark portfolios, respectively. We estimate Eq. (3) for the years before (*pre*) and after (*post*) the MNC initiation year⁹ and compute the changes in excess return comovement as below:

$$\Delta\beta_{Di} = \beta_{Di,post} - \beta_{Di,pre} \quad (4a)$$

$$\Delta\beta_{Mi} = \beta_{Mi,post} - \beta_{Mi,pre} \quad (4b)$$

We run Eq. (2) for each of the PSM control firms, denoted as c , and obtain the four corresponding comovement coefficients: $\beta_{Dc,pre}$, $\beta_{Mc,pre}$, $\beta_{Dc,post}$, and $\beta_{Mc,post}$. We then calculate

⁸ We thank Kenneth French for sharing the data on his website, https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

⁹ To account for the reporting lag of financial variables, we follow Hameed and Xie (2019) and define the pre-initiation year as from April of year $t - 1$ to March of year t and the post-initiation year as from April of year $t + 1$ to March of year $t + 2$.

their comovement changes in the same way as in Eqs. (4a) and (4b) and denote them as $\Delta\beta_{Dc}$ and $\Delta\beta_{Mc}$.

If there exists an investor clientele for multinationals, we expect that stock returns of the MNC initiators comove less with the returns of DOM stocks and covary more with those of MNC stocks. If so, the average of $\Delta\beta_{Di}$, i.e., $\Delta\beta_D$, is smaller than zero whereas the average of $\Delta\beta_{Mi}$, i.e., $\Delta\beta_M$, is larger than zero. Because the control firms are selected from a set of domestic firms and do not become multinational firms in the event year, we do not expect them to experience any significant change in their excess return comovement with the benchmarks, i.e., the averages of $\Delta\beta_{Dc}$ and $\Delta\beta_{Mc}$ are not statistically different from zero.

3. Empirical Results

3.1 Descriptive Statistics

Figure 1 presents the distribution of the MNC initiators across the sample period from 1979 to 2016. Our final sample consists a total of 1,173 MNC initiations. The figure indicates a gradual increase in the number of MNC initiators until the IT boom period of 1998 – 1999 that sees an enormous jump in MNC initiation from 58 in 1997 to 218 in 1998 and 173 in 1999. The MNC initiation number falls to 73 in 2000 and becomes smaller in more recent years. The large MNC increase over the IT boom period is consistent with Bloom, Sadun, and Reenen (2012) who document a significant growth in productivity for U.S. multinationals due to negative shocks to the costs of IT capital.

Figure 2 shows the distribution of the MNC initiators by 12 Fama-French industries¹⁰. The figure shows that Business Equipment sector displays the largest number of new multinational firms with 324 observations. Manufacturing and Healthcare sectors rank second and third with 171 and 165 MNC initiators, respectively. Conversely, Chemicals and Telecommunication have the lowest ranks with 48 newly multinational firms in total.

[Insert Figure 1 Here]

[Insert Figure 2 Here]

Table 1 presents summary statistics on foreign export ratio of the MNC initiators across the 12 Fama-French industries (Panel A) and the 5-year periods (Panel B). Panel A shows that foreign sales, on average, account for around 18% of the total sales generated by our sample MNC initiators in the year they start their international diversification. The new multinationals from Business Equipment, Chemicals, and Healthcare report the largest foreign sale ratio of more than 20% while the new MNCs in Utility and Shops sectors record roughly a foreign sale ratio of roughly 10%. Panel B shows that foreign sale ratio of the MNC initiators is relatively stable over the 5-year periods, except the marked increase during the IT boom period. The trend in foreign sale ratio is in line with the pattern of new MNC numbers in Figure 1.

[Insert Table 1 Here]

Table 2 presents the tests of mean and median differences in firm characteristics between the MNC initiators and control firms. Generally, the PSM method has done a good job

¹⁰ These 12 industries are described on Kenneth French's website, https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_12_ind_port.html.

of matching each MNC initiator to a control firm that shares the same firm characteristics. None of the tests show any statistically significant difference.¹¹

[Insert Table 2 Here]

3.2. Baseline Results

We present baseline results in Table 3. In general, we find that becoming a multinational firm yields a significant shift in return comovement of the MNC firm with the two benchmark portfolios. Specifically, Panel A shows that the MNC initiators register a significant decrease in return comovement with the portfolio of domestic stocks from 0.573 to 0.318, a difference of -0.318 (or a 55% reduction from the pre-MNC initiation year) statistically significant 1% level. In contrast, these initiators experience a substantial increase from 0.235 to 0.439 in return comovement with the benchmark portfolio of multinational stocks. This increase of 0.204 is statistically and economically significant, representing an 87% increase from year $t - 1$ before the MNC initiation year. Panel A also shows that the MNC initiators exhibit a larger return comovement with their UNC peers than the MNC stocks in the pre-event year. However, after they become multinational firms, the returns of the MNC initiators become more covariant with the new MNC peers than the old UNC stocks. This shift, $\Delta\beta_i$, of -0.522 is statistically significant at the 1% level.

The results in Panel B for the PSM control firms do not indicate any significant change in comovement between their returns and the benchmark portfolios. In Panel C, we report the comovement results for the MNC initiators after adjusting for the comovements of the control

¹¹ We also perform the difference tests for year $t + 1$, the results show that only two out of 18 tests are marginally statistically significant at the 10% level. These results indicate that there are no material differences between the treated and control firms.

firms. The adjusted return comovements are insignificant for both the UNC and MNC portfolios in the pre-MNC initiation year, confirming that our sample MNC initiators and their PSM matched peers have similar fundamentals. The post-event results show that the adjusted return comovement with the portfolio of UNC stocks decreases markedly while the adjusted comovement with the MNC stocks increase considerably. The net adjusted return comovement between the pre- and post-event periods, $\Delta\beta$, of -0.539 is statistically significant at the 1% level. Overall, the results in Table 3 suggest that multinationals represent an investment category.

[Insert Table 3 Here]

Beyond the initiation year, we also find that return comovement of MNC initiators with existing MNC firms continues to increase to 0.814 in year $t + 2$ and then reaches the stability while their return comovement with domestic firms are stable after the initiation year. The results are consistent with slow adjustments in the investor clientele and it takes more than one year to complete. The results are reported in detail in Appendix Table A3.

3.3 An Exogenous Shock to U.S. Firms' International Expansion Choice

In our study, the important issue is to demonstrate that the return co-movement of MNC initiators is driven by investor preference beyond changes in fundamental factors. In previous section, we apply PSM method to create a set of control firms and find no significant change in the return comovement of the control peers. In this section, we further address this important issue by restricting our samples to the period of exogenous shocks to distinguish style investing hypothesis and fundamental factors. We argue that the two consecutive years of 1998 and 1999 constitute the period of exogenous shocks to U.S. firms' international expansion choice. As

shown in Figure 1 before, the number of MNC initiators spikes during the 1998 – 1999 period. There are a couple of possible reasons underlying this huge increase. First is the Asian Financial Crisis in 1997. Bernard, Jensen, Redding, and Schott (2009) show that U.S. exports to Asia decrease by 21% between 1996 and 1998, while they increase 3% to the rest of the world for the same period. Although this overall decline affects many U.S. multinationals, the economic crisis in Asia presents growth opportunities for other firms. The economic shock creates widespread disruption in firm performance and steep decline in asset values that are capitalized on by other healthy firms (Pangarkar and Lie, 2004; Wan and Yiu 2009). The shock also generates opportunities for firms to enter new product or geographic markets, or distribution networks (Meyer, Brooks, and Goes, 1990). Second, during the 1998 – 1999 period firms enjoy significant drop in information technology (IT) prices, which lowered product costs and increased productivity. Bloom, Sadun, and Reenen (2012) show that U.S. multinationals experience higher productivity than non-U.S. multinationals during this IT period, especially those MNCs in the sectors that use IT intensively (e.g., wholesale, retail, and financial services).

We conjecture that the Asian economic shock and the shock in IT prices could be exogenous shocks to U.S. firms' international expansion choice and explain the sharp increase in MNC initiators in our sample. We restrict our sample to 391 MNC initiations occurring in 1998 and 1999 and present the return comovements in Table 4. Panel A show that changes in return comovement are larger in magnitude compared to those in Table 3, especially for the return comovements with the portfolio of MNC stocks. Both post – pre β_{Di} and β_{Mi} are statistically significant and economically meaningful. The net change, $\Delta\beta_i$, of -0.721 is 38% larger than that in Panel A of Table 3. Even after controlling for the return comovements of the control firms, which do not show any significant changes, the results in Panel B are still strong and indicate that MNC initiators during the 1998 – 1999 period comove significantly less with their previous DOM peers and become significant more covariant in return with their new MNC

peers. The net adjusted change, $\Delta\beta$, of -0.827 is highly significant and more than 50% larger in magnitude than the corresponding change in Table 3.

4. Investor Clientele Evidence

4.1 Turnover Comovement

The return comovement results in the previous section seems to support the clientele for multinationals. If the preference for multinationals drives the return comovements, we should expect to see comovement in trading activity by investors as well. We address this conjecture by using turnover as a proxy for trading activity and investigate the turnover comovements of the MNC stocks with the two benchmark portfolios of multinational and domestic stocks. Since raw turnover is a non-stationary series, we follow Lo and Wang (2000), Karolyi, Lee, and van Dijk (2012), and Hameed and Xie (2019) to convert it into a stationary and detrend it as in Eq. (5) below:

$$TOV_{j,d} \equiv \log\left(1 + \frac{VOLUME_{j,d}}{NSH_{j,t}}\right) - \frac{1}{N} \sum_{k=1}^{100} \log\left(1 + \frac{VOLUME_{j,d-k}}{NSH_{j,t}}\right) \quad (5)$$

where $TOV_{j,d}$ and $VOLUME_{j,d}$ are the turnover and trading volume of stock j on day d , respectively. $NSH_{j,t}$ is the total number of shares outstanding at the beginning of year t . Next, we exclude the effects of return and day of the week from the detrended turnover using the Eq. (6) below:

$$TOV_{j,d} = \gamma_0 + \gamma_1|R_{j,d}| + \gamma_2|MR_d| + \gamma_3|R_{j,d-1}| + \gamma_4|MR_{d-1}| + \varphi_j \sum_{\tau=1}^4 D_\tau + RTOV_{j,d} \quad (6)$$

where $|R_{j,d}|$ and $|MR_d|$ are the absolute returns on stock j and the market index on day d while $|R_{j,d-1}|$ and $|MR_{d-1}|$ are the absolute returns on stock j and the market index on date $d - 1$, respectively. Four dummy variables, D_τ , are to capture the weekday effects. $RTOV_{i,d}$ is the residual turnover of stock j on day d .

We follow Hameed and Xie (2019) and run the following regression to obtain the turnover comovement coefficients between a new MNC firm and the two benchmark portfolios of multinational and domestic stocks:

$$RTOV_{i,d} = \alpha_i + \sum_{\tau=-1}^1 \beta_{TDi,\tau} RTOV_{D,d+\tau} + \sum_{\tau=-1}^1 \beta_{TMI,\tau} RTOV_{M,d+\tau} + \vartheta_d \quad (7)$$

where $RTOV_{D,d}$ and $RTOV_{M,d}$ are the equal-weighted averages of daily residual turnover of domestic and multinational stocks on day d , respectively. We estimate model (7) for each sample stock during year $t - 1$ and year $t + 1$ relative to the event year. The turnover comovement coefficient is the sum of coefficients corresponding to days -1, 0, and +1. Specifically, $\beta_{TDi} = \beta_{TDi,-1} + \beta_{TDi,0} + \beta_{TDi,+1}$ and $\beta_{TMI} = \beta_{TMI,-1} + \beta_{TMI,0} + \beta_{TMI,+1}$. Hence, β_{TDi} (β_{TMI}) represents the comovement of a sample stock i 's residual turnover with the average residual turnover of DOM (MNC) stocks. We also obtain the corresponding coefficients of β_{TDc} and β_{TMc} for each of the control firms.

The results are shown in Table 5. Panel A displays the results for the new MNCs only. There is a remarkable switch in turnover comovement from the DOM portfolio to the MNC portfolio. Before the MNC initiation, the sample firms only exhibit significant turnover comovements with other DOM stocks with β_{TDi} equal to 0.448 statistically significant at the 1% level. However, one year after having become MNCs, our sample firms no longer show any

comovement in turnover with their previous DOM stocks, their turnover covary significantly with their new MNC peers with β_{TDi} equal to 0.374. The post-pre results show a net change, $\Delta\beta_{Ti}$ of -0.870 strongly significant at the 1% level. Panel B shows the results for the PSM control firms. As expected, their turnover comovements are only with other DOM stocks; however, there is no evidence of a change or a shift in turnover comovement. The results in Panel C show the MNCs' turnover comovements after adjusted for those of the control firms. They indicate that both sample and control firms are not different in their turnover comovements with the respective benchmark portfolios in the year before the MNC event year. The post and post-pre columns indicate that turnover comovements shift considerably from the portfolio of DOM stocks to the portfolio of MNC stocks. Both decrease in $\Delta\beta_{TD}$ and increase $\Delta\beta_{TM}$ are statistically significant at the 1% level, leading to a grand net change, $\Delta\beta_T$, of -0.921.

4.2 Mutual Fund Holdings

Equipped with the supportive evidence on the general comovements of investor trading activity, we now examine changes in mutual fund holdings to provide more direct evidence on the investor preference for multinationals. Literature on geographical diversification have reported ample evidence on investor home bias (e.g., French and Poterba, 1991; Coval and Moskowitz, 1999, Karlsson and Norden, 2007). Chan, Covrig, and Ng (2005) show that the levels of home bias and international diversification depend on various factors such as economic development, capital controls, familiarity, and investor protection quality while Aggarwal, Klapper, and Wysocki (2005), and Gelos and Wei (2005) find accounting transparency affects the investment of U.S. mutual funds in emerging markets. If holding shares of multinational firms could help investors achieve their international diversification (Mathur

and Hanagan, 1983; Michel and Shaked, 1986), mutual funds would adjust their holdings of the new MNCs.¹²

To address this conjecture, we merge holdings data for all U.S. equity mutual funds from Thomson Reuters CDA/Spectrum database to fund flows from the CRSP Survivor-Bias-Free Mutual Fund database by using MFLINKS tables. We only select equity funds with at least 65% of their assets in common stocks (e.g., Cremers and Petajisto, 2009; Amihud and Goyenko; 2013). Next, we aggregate share class observations to the fund level and use them to classify mutual funds into five groups of relative preference for multinationals. Specifically, we employ Eq. (8) below to measure the weighted average international diversification across all stocks owned by fund f in year t .

$$MFDIV_{f,t} = \sum w_{f,i,t} * DIV_{i,t} \quad (8)$$

where $MFDIV_{f,t}$ is the fund-level international diversification in year t ; $w_{f,i,t}$ is the investment weight of stock i held by fund f in year t ; and $DIV_{i,t}$ is the foreign sale ratio of stock i in year t . The summation represents all common stocks held by fund f in year t . $MFDIV_{f,t}$ is positively related to the fund's preference for multinationals. We then sort all funds into quintiles based on their yearly $MFDIV$ values. For each MNC initiator in our sample, we calculate the change in its holding by mutual fund f from the year before to the year after the MNC initiation, i.e., $\Delta w_{f,i,t+1} = w_{f,i,t+1} - w_{f,i,t}$.¹³ We then aggregate the holding changes across all MNC initiators for fund f in year t . Similarly, we compute the holding changes for the matched control firms.

¹² Cai and Warnock (2006) use SEC 13-F filings in the fourth quarter of 1994 and first quarter of 2000 and find that there is a greater proportion of institutional investors for firms with a higher percentage of foreign sales. However, they do not examine whether institutional investors adjust their holdings of these firms in response to changes in foreign sales.

¹³ We follow the literature (e.g., Hameed and Xie, 2019) and use a stock's investment weight in the first quarter of the year to proxy for its yearly weight. In addition, the stock's pre-MNC event weight is its investment weight at the end of the first quarter of the event year.

Table 6 reports these holding changes. Panel A shows the results for our MNC initiators across mutual fund quintiles. As expected, we find that when our sample firms are still domestic firms in the year before the MNC initiation, their representation is high in the *LOW_MFDIV* mutual funds but low in the *HIGH_MFDIV* group. However, that changes substantially in the year after the MNC event. The post – pre column shows that funds that prefer multinational stocks, *HIGH_MFDIV*, significantly increase their holdings of multinational initiators by 0.199 percentage points while funds that prefer domestic stocks without international diversification, *LOW_MFDIV*, significantly decrease their holdings of the MNC initiators by 0.645 percentage points. The difference in the post – pre holding change between the *HIGH_MFDIV* and *LOW_MFDIV* funds is 0.844 statistically significant at the 1% level. The monotonic increase in the mutual fund holding changes of the MNC initiators further confirms the existence of investor preference for multinationals. In Panel B, we report the results for the PSM matched firms and find no significant changes in mutual funds’ holdings of these firms. Panel C reports the holding changes for the MNC initiators after adjusted for those of the control firms. The results confirm the findings in Panel A that MNC initiators become more sought after by mutual funds that favour international diversification via holding MNCs.

[Insert Table 6 Here]

4.3 Mutual Fund Flows and Return Comovement

In this section, we investigate whether mutual funds’ preference for multinationals or domestic firms affect the returns of these stocks via the funds’ allocation of their capital flows. We employ a similar framework as Lou (2012) and Hameed and Xie (2019). First, we compute flow-induced trading for each stock i in mutual fund f in month m , $FIT_{f,i,m}$, as follows:

$$FIT_{f,i,m} = FLOW_{f,m} * \frac{SHR_{f,i,m}}{\sum_{k \in N} SHR_{k,i,m}} \quad (9)$$

where $SHR_{f,i,m}$ is the number of shares of stock i held by mutual fund f , and $SHR_{k,i,m}$ is the number of shares of stock i in fund k th in our sample of N domestic equity funds¹⁴. Fund f 's dollar flow in month m , $FLOW_{f,m}$, is measured as in Eq. (12):

$$FLOW_{f,m} = \frac{TNA_{f,m} - TNA_{f,m-1}(1 + R_{f,m}) - MergeTNA_{f,m}}{TNA_{f,m-1}} \quad (10)$$

where TNA is the fund's total net asset at the end of the month; R is the fund's monthly return; and $MergeTNA$ is to adjust for the increase in TNA due to mergers in the month. Next, we classify all domestic equity funds into MNC-favored funds and DOM-favored funds based on their levels of international diversification in quarter q , $MFDIV_{f,q}$. We then aggregate the flow-induced trading of stock i , $FIT_{f,i,m}$, across funds in the same preference groups and denote them as $FIT_MNC_{i,m}$ and $FIT_DOM_{i,m}$, respectively.

We expect that the flow-induced trading of MNC-favored funds would have a relatively more positive impact on the stock prices of MNCs than DOMs. In contrast, the flow-induced trading of DOM-favored funds is expected to have relatively more significant effect on the stock prices of DOMs than MNCs. Each year, we regress the monthly stock returns in years $t + 1$ and $t + 2$ on the two measures of FIT_MNC and FIT_DOM and the four Fama-French-Carhart risk factors. We include the lagged values of FIT_MNC and FIT_DOM and the monthly returns of the industry that a stock belongs as control variables.¹⁵ We then obtain the yearly

¹⁴ We use holdings in the latest quarter to proxy for holdings in month t since mutual fund holdings are reported on a quarterly basis.

¹⁵ A monthly industry return is the value-weighted return across all stocks in the same Fama-French 48 industries. In addition, we require 24 monthly observations for each regression.

average coefficients for all MNC and DOM stocks separately and report the time-series average of these coefficients with the Newey-West adjusted t -statistics in Table 7.

The results support our expectations. Multinational stocks' returns are positive and significantly correlated with the flow-induced trading of MNC-favored funds. The *FIT_MNC* coefficient is 0.735 statistically significant at the 1% level in column (1). Although its magnitude is almost double in column (3) where we control for lagged flow-induced trading and industry returns, the statistical significance reduces to the 10% level. The *FIT_DOM* coefficient is not significant, suggesting that the flows of DOM-favored mutual funds do not affect the returns of MNC stocks. As for domestic stocks, the results show that DOM returns are strongly affected by the trading of DOM-favored funds. The *FIT_DOM* coefficient is statistically significant and follows a similar pattern as that of *FIT_MNC* for multinationals. The effect of MNC-favored funds' trading on DOM stock returns is insignificant across the three regression specifications. Therefore, the findings in Table 7 further confirm our evidence of investor preference for multinationals.

[Insert Table 7 Here]

5. Robustness and Subsample Analysis

5.1 Univariate Regressions

In main analysis, we regress bivariate models to estimate the return comovements of MNC initiators and their matched peers. However, Chen, Singal, and Whitelaw (2016) indicate that return comovements are sensitive to small changes in the parameters of bivariate

regressions. This parameter sensitivity can be reduced by using univariate regressions. Thus, we apply univariate models to measure the return comovements of MNC initiators as follows:

$$R_{i,d} = \alpha_i + \beta_{Di}BMK_DOM_{res,d} + \gamma_i X_d + \varepsilon_{i,d} \quad (11a)$$

$$R_{i,d} = \alpha_i + \beta_{Mi}BMK_MNC_{res,d} + \gamma_i X_d + \varepsilon_{i,d} \quad (11b)$$

All variables are defined as in Eq. (3). The models are estimated for years $t - 1$ and $t + 1$ relative to the MNC initiation year. We also apply Eqs. (11a) and (11b) for the control firms.

The univariate regression results reported in Table 8 are consistent with those in Table 3. Panel A shows that while the MNC initiators comove more with their previous peers in the year before the MNC initiation, their returns become less covariant with these firms in the post-event year. This decrease in return comovement is -0.180 (or 27% lower than the pre-event level) statistically significant at the 1% level. The results also show that MNC initiators exhibit higher return comovement with other MNC stocks after having become an MNC firm. The post – pre difference in β_{Mi} is 0.269 (or 59% higher than the pre-event level) both statistically and economically significant. Similar to the main results, we find no significant changes in the return comovement of control firms in Panel B. Panel C presents the relative changes in stock return comovement of MNC initiators after subtracting the return comovements of control peers, and the results are consistent with Panel A and those in Table 3. Therefore, Table 8 indicates that our findings are robust to different approaches.

[Insert Table 8 Here]

5.2 Degree of International Diversification

The return comovement shifts found in the main analysis could differ depending on the degree of international diversification of MNC initiators. MNC initiators report a relatively large foreign sale ratio may attract better attention from investors than MNC initiators with a lower foreign sale ratio. We attempt to address this conjecture in this section. We classify all multinationals in the cross section based on their foreign sale ratios into two groups: low and high multinational groups. 919 of our MNC initiators fall within the low multinational group while 276 MNC initiators belong to the high multinational group. We then re-examine the return comovements of firms in these two groups with the expectation that changes in the return comovements of high multinational initiators should be greater than those of low multinational initiators.

We report the results in Table 9. Panel A shows the return comovements of MNC initiators and Panel B displays the results after adjusting for the return comovements of the PSM matched firms¹⁶. Panel A shows that although both low and high MNC initiation groups experience a significant decrease in return comovement with the portfolio of DOM stocks, the magnitude of the decrease for the high MNC group is -0.502 almost twice as much as the decrease of -0.263 for the low MNC group. In addition, while the return comovement increase for the low MNC initiators is 0.233 statistically significant at the 1% level, the increase for the high MNC initiators is statistically insignificant. The net change in $\Delta\beta_i$ is larger for the high MNC initiators than for the low MNC initiators, which is consistent with our expectation. The comovement results after adjusting for the comovements of the control firms in Panel B exhibit the same patterns as in Panel A.

¹⁶ To save space, we do not report the return comovements of the control firms. Consistent with the previous sections and our expectations, we find no significant change in the return comovements of the control peers. The results are available upon request.

[Insert Table 9 Here]

5.3 Single vs. Multiple Multinational Initiators

Newly multinational firms could choose to expand their business to a single market or multiple markets. We further explore our sample's changes in return comovement based on the number of their foreign markets. 778 of our MNC initiators report only a single foreign market in foreign sale and 417 MNC initiators report multiple foreign markets in the event year. We re-examine the return comovements for these two groups and display the results in Table 10. Panel A focuses on the MNC initiators' return comovements alone while Panel B shows the results after adjusting for the control firms' comovements. In Panel A, MNC initiators with a single foreign market experience a slightly larger decrease (increase) in return comovement with the portfolio of DOM (MNC) stocks in the year after the MNC initiation year, compared to MNC initiators with more than one foreign market. The adjusted results in Panel B are statistically weaker but follow a similar pattern.

[Insert Table 10 Here]

5.4 Sub-Samples

Longin and Solnik (1995) study the correlation of seven countries over the 1960 – 1990 period and find evidence of an increase in international correlation between these markets. Pukthuanthong and Roll (2009) focus on the integration for a large sample of 81 countries and find that integration among these countries has increase substantially over the 35-year period of their sample. Bekaert, Hodrick, and Zhang (2009) show that large growth stocks exhibit

higher correlation across countries than small value stocks, and the correlation gap between them increases over time. These increased correlation among international financial markets are due to, among other things, lower impediments to international investment and improved information environment (Bekaert, Hodrick, and Zhang, 2009). We expect that investor preference for multinationals and its associated effect on return comovement reduce over time. To test this prediction, we split our MNC sample into two periods: 1979 – 1997 and 2000 – 2016, excluding the 1998 – 1999 post-Asian economic shock period (i.e., using as exogenous shocks in the previous section).

Consistent with our expectation, the results in Table 11 show that the changes in return comovement are stronger and larger for the earlier period. Specifically, Panel A shows that the post – pre difference for the 1979 – 1997 period is -0.414 for the correlation between MNC initiators and DOM stocks, β_{Di} , and 0.174 for the MNC return correlations with other MNC stocks, β_{Mi} , which registers a net shift in return comovement of -0.588 statistically significant at the 1% level. The net shift in return comovement for the 2000 – 2016 period is -0.356 approximately 40% lower than that in the earlier period, which is driven by the smaller post – pre difference in β_{Di} . The results in Panel B after adjusting for the control firms' comovements exhibit a similar pattern.

6. Conclusion

This paper contributes to the literature on style investing and investor preference for multinationals. We argue that investors seek after firms with geographic diversification, i.e., multinationals, leading to comovement in the returns of these firms. Using the initiation of foreign sales as a proxy for geographic diversification, we find that multinational initiators' return comovements with their domestic peers decline significantly one year after their MNC

initiation year. In contrast, MNC initiators find their returns covary significantly more with firms in the MNC group. Our analysis on investor trading activity provides further support evidence that investors restructure their holdings of the MNC initiators after the initiation event. Our results are robust to a restriction to the 1998 – 1999 period which is the post-Asian economic shock and during the negative shock in IT prices as an exogenous shock to international diversification choices. The findings remain strong when we employ univariate regressions as suggested by Chen, Singal, and Whitelaw (2016). Finally, our subsample results show that higher foreign sale ratios in the MNC initiation year are associated with larger return comovement changes in the post event year.

Our paper adds to the ample evidence in the literature on style investing by documenting that corporate international diversification is a category for investment based on which investors choose their portfolios. Our evidence also suggests that despite the lower trading barriers over time, investors still seek for corporate diversification as a way to achieve international diversification for their portfolios.

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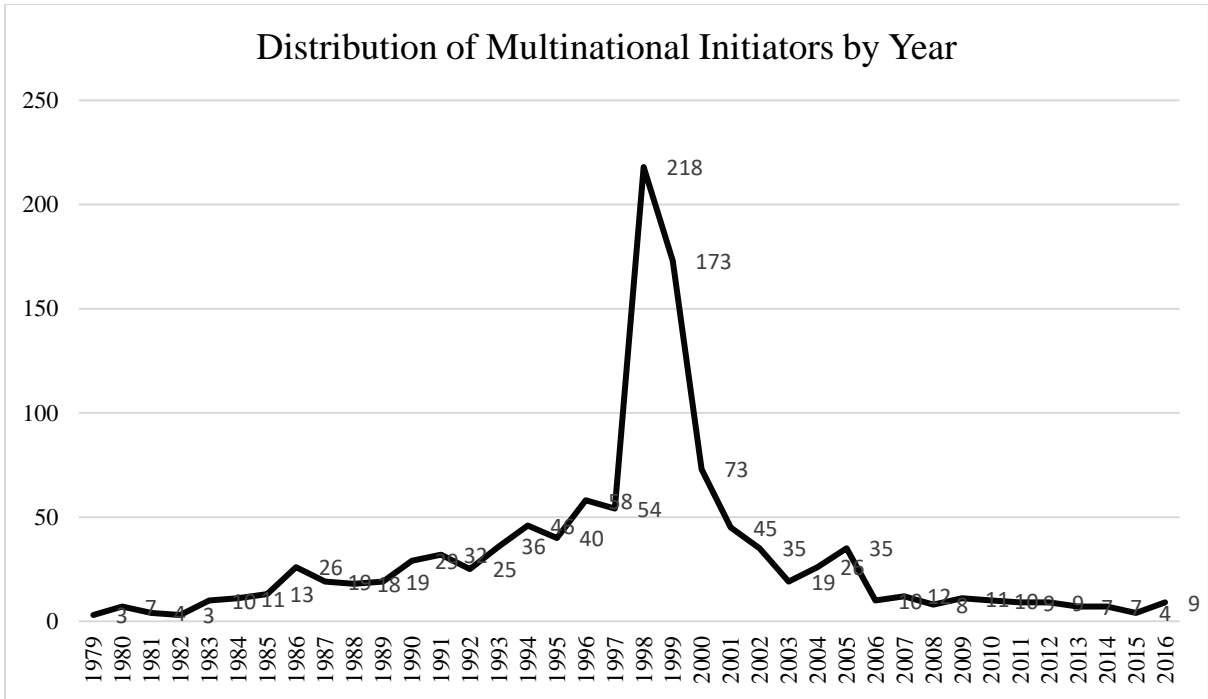


Figure 1: This figure shows the distribution of multinational initiators in the research period from 1979 to 2016.

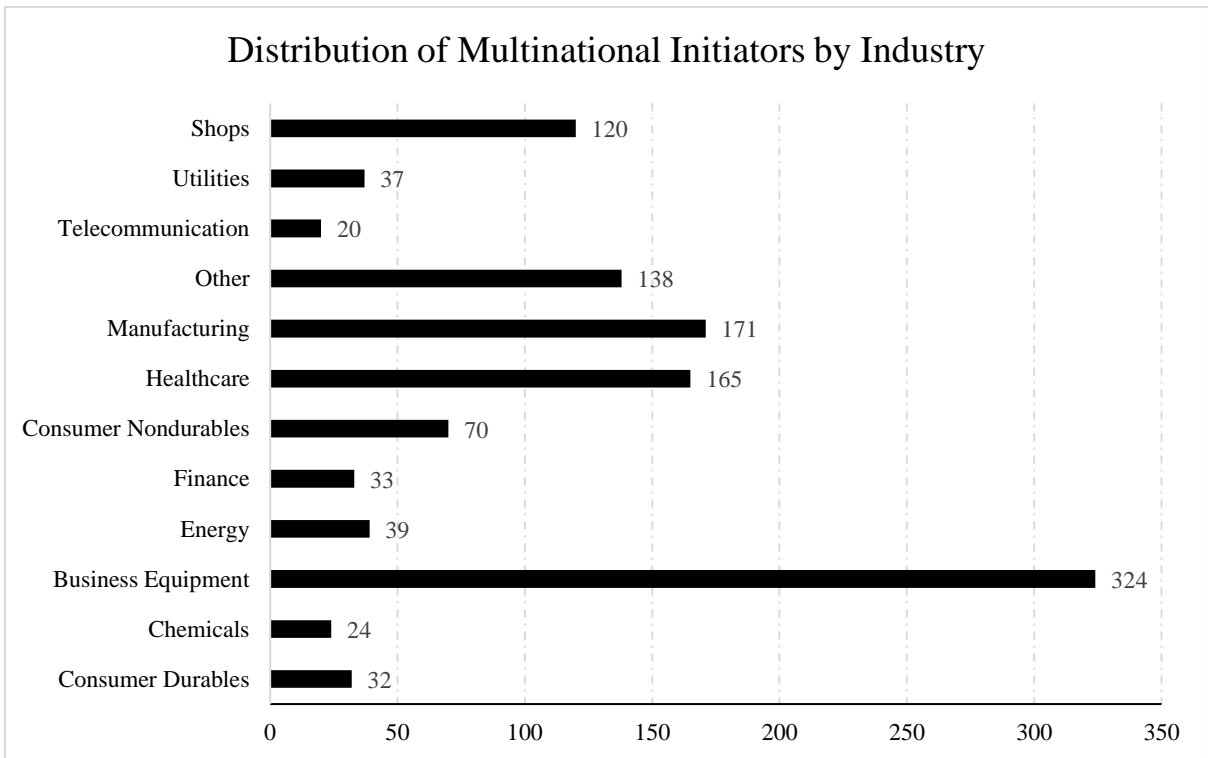


Figure 2: This figure shows the distribution of multinational initiators by Fama-French 12 industries.

TABLE 1
Multinational Initiations by Industry and Year

<i>Panel A: Distribution by 12 Fama-French Industries</i>			
	N	FS Mean	FS Stdev.
Consumer Durables	32	0.123	0.145
Chemicals	24	0.212	0.246
Business Equipment	324	0.223	0.204
Energy	39	0.157	0.159
Finance	33	0.161	0.180
Consumer Nondurables	70	0.124	0.160
Healthcare	165	0.238	0.232
Manufacturing	171	0.159	0.184
Other	138	0.147	0.208
Telecommunication	20	0.205	0.224
Utilities	37	0.103	0.159
Shops	120	0.118	0.178
<i>Panel B: Distribution by 5-Year Periods</i>			
	N	FS Mean	FS Stdev.
1979-1985	51	0.111	0.115
1986-1990	111	0.169	0.192
1991-1995	179	0.148	0.161
1996-2000	576	0.220	0.223
2001-2005	160	0.135	0.188
2006-2010	51	0.125	0.163
2011-2016	45	0.105	0.145

The table shows the distribution of multinational initiations by 12 Fama-French industries and 5-year periods. FS Mean and Stdev. are the average and standard deviation of the foreign sale ratio (i.e., foreign sales / total sales) of multinational initiators in year t (i.e., event year).

TABLE 2
Characteristics of Sample Firms and Control Firms

	Multinational Initiators			PSM Matched Firms			Difference Tests	
	N	Mean (1)	Median (2)	N	Mean (3)	Median (4)	Mean (1-3)	Median (2-4)
Firm size	1,173	4.560	4.339	1,173	4.582	4.391	-0.022	-0.052
Leverage	1,173	0.155	0.108	1,173	0.147	0.096	0.009	0.012
Innovation expense	1,173	0.037	0.011	1,173	0.038	0.010	-0.002	0.001
Dividend payer (dummy)	1,173	0.229	0.000	1,173	0.209	0.000	0.020	0.000
Market-to-book ratio	1,173	2.855	1.961	1,173	2.871	1.914	-0.017	0.046
Distress (dummy)	1,173	0.393	0.000	1,173	0.374	0.000	0.019	0.000
Return on assets	1,173	-0.015	0.031	1,173	-0.022	0.028	0.007	0.003
Cash holding	1,173	0.170	0.079	1,173	0.174	0.071	-0.004	0.007
Cash flow volatility	1,173	0.094	0.053	1,173	0.097	0.057	-0.003	-0.004

This table presents difference tests in mean and median of firm characteristics between multinational initiators and PSM control firms. For each year, we label a firm as a multinational initiator in year t if it satisfies two conditions: (1) foreign sale equals to zero in year $t - 2$ and $t - 1$, and (2) foreign sale is different from zero in year t . For each multinational initiator, we find a matched firm from a universe of domestic firms by using the propensity score matching (PSM) method. In each year t , we first choose all multinational initiators and firms that have no foreign sale in year $t - 2$, $t - 1$ and t (i.e., purely domestic firms). We next run a logit model on the propensity to become a multinational firm as follows:

$$D_MNC_i = a + b_1SIZE_i + b_2LEV_i + b_3RnD_i + b_4DIV_i + b_5MB_i + b_6PROFIT_i + b_7CASH_i + b_8CFVOL_i + b_9DISTRESS_i + e_i \quad (1)$$

where D_MNC is a dummy variable that equals to one if the firm is a multinational initiator in year t , and zero if the firm is domestic firm in year t . $SIZE$ is the log of total assets (Compustat item AT); LEV is leverage measured as long-term debt (DLTT) divided by total assets; RnD is calculated as research and development expenditure (XRD) scaled by total assets; DIV is a dummy variable equal to one for dividend-paying firms and zero otherwise; MB is the market-to-book ratio calculated as the market value of equity (PRCC * CSO) divided by total stockholders' equity (SEQ); $PROFIT$ is the return on asset ratio measured as net income (NI) divided by total assets; $CASH$ is the ratio of cash holdings (CHE) to total assets; and $CFVOL$ is the standard deviation of operating income (OANCF) over a 3-year window. $DISTRESS$ is based on Altman's (1968, 2002) Z-score and defined as a dummy variable equal to one for distressed firms and zero otherwise. Each MNC initiator is matched to a control firm that has the closest propensity to become a multinational firm. We require the difference in the propensity score between each MNC initiator and the matched peer to be less than 0.01, and that they are in the same industry. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 3
Return Comovement of Multinational Initiating Firms

<i>Panel A: Return Comovement of Multinational Initiators</i>			
	PRE	POST	POST - PRE
Domestic Portfolio (β_{Di})	0.573*** (0.045)	0.255*** (0.031)	-0.318*** (0.055)
Multinational Portfolio (β_{Mi})	0.235*** (0.044)	0.439*** (0.047)	0.204*** (0.064)
$\Delta\beta_i = \beta_{Di} - \beta_{Mi}$	0.338*** (0.063)	-0.184*** (0.056)	-0.522*** (0.097)
<i>Panel B: Return Comovement of Control Firms</i>			
	PRE	POST	POST - PRE
Domestic Portfolio (β_{Dc})	0.661*** (0.034)	0.687*** (0.034)	0.026 (0.048)
Multinational Portfolio (β_{Mc})	0.228*** (0.047)	0.237*** (0.045)	0.009 (0.065)
$\Delta\beta_c = \beta_{Dc} - \beta_{Mc}$	0.433*** (0.058)	0.450*** (0.057)	0.017 (0.092)
<i>Panel C: Difference in Return Comovement of Multinational Initiators and Control Firms</i>			
	PRE	POST	POST - PRE
$\Delta\beta_D = \beta_{Di} - \beta_{Dc}$	-0.088 (0.056)	-0.432*** (0.046)	-0.343*** (0.068)
$\Delta\beta_M = \beta_{Mi} - \beta_{Mc}$	0.008 (0.064)	0.203*** (0.065)	0.196** (0.089)
$\Delta\beta = \Delta\beta_D - \Delta\beta_M$	-0.096 (0.097)	-0.635*** (0.092)	-0.539*** (0.128)

This table presents the average return sensitivity for 1,173 multinational initiators and their PSM matched peers (see Table 2 for detail on the PSM method) to two benchmark portfolios of multinational (MNC) stocks and domestic (DOM) stocks. Specifically, in each year t we run the following regression model:

$$RET_{i,d} = \alpha_i + \beta_{Di}BMK_DOM_{res,d} + \beta_{Mi}BMK_MNC_{res,d} + \gamma_i X_d + \varepsilon_{i,d} \quad (3)$$

where $RET_{i,d}$ is the return on MNC initiator i on day d . $BMK_DOM_{res,d}$ and $BMK_MNC_{res,d}$ are the residual returns of the DOM and MNC portfolios on day d , respectively after adjusting for their dependence on the Fama–French–Carhart (FFC) model. X_d includes the four factors in the FFC model, as described in Eq. (2). β_{Di} and β_{Mi} represent the excess comovements in return between an MNC initiator and the DOM and MNC benchmark portfolios, respectively. Similarly, we obtain the corresponding β_{Dc} and β_{Mc} for control firm c in the same year. *PRE* and *POST* represent year $t - 1$ and $t + 1$ surrounding the MNC initiation year. Standard errors are in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 4
Return Comovement under the 1997 Asian Economic & IT Boom Shocks

<i>Panel A: Return Comovement of Multinational Initiators</i>			
	PRE	POST	POST - PRE
Domestic Portfolio (β_{Di})	0.608*** (0.081)	0.270*** (0.055)	-0.338*** (0.098)
Multinational Portfolio (β_{Mi})	0.249*** (0.082)	0.631*** (0.085)	0.383*** (0.118)
$\Delta\beta_i = \beta_{Di} - \beta_{Mi}$	0.360*** (0.115)	-0.361*** (0.101)	-0.721*** (0.186)
<i>Panel B: Return Comovement of Control Firms</i>			
	PRE	POST	POST - PRE
Domestic Portfolio (β_{Dc})	0.714*** (0.058)	0.751*** (0.062)	0.037 (0.085)
Multinational Portfolio (β_{Mc})	0.266*** (0.080)	0.196*** (0.075)	-0.070 (0.110)
$\Delta\beta_c = \beta_{Dc} - \beta_{Mc}$	0.448*** (0.099)	0.555*** (0.097)	0.107 (0.163)
<i>Panel C: Difference in Return Comovement of Multinational Initiators and Control Firms</i>			
	PRE	POST	POST - PRE
$\Delta\beta_D = \beta_{Di} - \beta_{Dc}$	-0.106 (0.100)	-0.481*** (0.083)	-0.375*** (0.117)
$\Delta\beta_M = \beta_{Mi} - \beta_{Mc}$	-0.017 (0.114)	0.435*** (0.113)	0.452*** (0.158)
$\Delta\beta = \Delta\beta_D - \Delta\beta_M$	-0.089 (0.176)	-0.916*** (0.174)	-0.827*** (0.235)

This table presents the average return sensitivity for 391 multinational initiators and their PSM matched peers (see Table 2 for detail on the PSM method) to two benchmark portfolios of multinational (MNC) stocks and domestic (DOM) stocks. These MNC initiations occur during the 1998 – 1999 period after the 1997 Asian economic and IT boom shocks. In each year t , we run the following regression model:

$$RET_{i,d} = \alpha_i + \beta_{Di}BMK_DOM_{res,d} + \beta_{Mi}BMK_MNC_{res,d} + \gamma_i X_d + \varepsilon_{i,d} \quad (3)$$

where $RET_{i,d}$ is the return on MNC initiator i on day d . $BMK_DOM_{res,d}$ and $BMK_MNC_{res,d}$ are the residual returns of the DOM and MNC portfolios on day d , respectively after adjusting for their dependence on the Fama–French–Carhart (FFC) model. X_d includes the four factors in the FFC model, as described in Eq. (2). β_{Di} and β_{Mi} represent the excess comovements in return between an MNC initiator and the DOM and MNC benchmark portfolios, respectively. Similarly, we obtain the corresponding β_{Dc} and β_{Mc} for control firm c in the same year. *PRE* and *POST* represent year $t - 1$ and $t + 1$ surrounding the MNC initiation year. Standard errors are in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 5
Turnover Comovement of Multinational Initiators

<i>Panel A: Turnover Comovement of Multinational Initiators</i>			
	PRE	POST	POST - PRE
Domestic Portfolio (β_{TDi})	0.448*** (0.049)	-0.053 (0.039)	-0.500*** (0.063)
Multinational Portfolio (β_{TMi})	0.005 (0.034)	0.374*** (0.036)	0.369*** (0.050)
$\Delta\beta_{Ti} = \beta_{TDi} - \beta_{TMi}$	0.443*** (0.060)	-0.426*** (0.053)	-0.870*** (0.106)
<i>Panel B: Turnover Comovement of Control Firms</i>			
	PRE	POST	POST - PRE
Domestic Portfolio (β_{TDc})	0.369*** (0.054)	0.408*** (0.058)	0.038 (0.080)
Multinational Portfolio (β_{TMc})	0.048 (0.039)	0.034 (0.044)	-0.013 (0.059)
$\Delta\beta_{Tc} = \beta_{TDc} - \beta_{TMc}$	0.322*** (0.066)	0.373*** (0.073)	0.052 (0.129)
<i>Panel C: Difference in Turnover Comovement of Multinational Initiators and Control Firms</i>			
	PRE	POST	POST - PRE
$\Delta\beta_{TD} = \beta_{TDi} - \beta_{TDc}$	0.078 (0.073)	-0.460*** (0.070)	-0.539*** (0.100)
$\Delta\beta_{TM} = \beta_{TMi} - \beta_{TMc}$	-0.043 (0.052)	0.340*** (0.057)	0.382*** (0.076)
$\Delta\beta_T = \Delta\beta_{TD} - \Delta\beta_{TM}$	0.121 (0.116)	-0.800*** (0.102)	-0.921*** (0.166)

This table presents the average turnover sensitivity for 1,173 multinational initiators and their PSM matched peers (see Table 2 for detail on the PSM method) to two benchmark portfolios of multinational (MNC) and domestic (DOM) stocks. Specifically, in each year t we run the following regression:

$$RTOV_{i,d} = \alpha_i + \sum_{\tau=-1}^1 \beta_{TDi,\tau} RTOV_{D,d+\tau} + \sum_{\tau=-1}^1 \beta_{TMi,\tau} RTOV_{M,d+\tau} + \vartheta_d \quad (7)$$

where $RTOV_{D,d}$ and $RTOV_{M,d}$ are the equal-weighted averages of daily residual turnover of domestic and multinational stocks on day d , respectively. We estimate model (7) for each sample stock during year $t-1$ and year $t+1$ relative to the event year. The turnover comovement coefficient is the sum of coefficients corresponding to days -1 , 0 , and $+1$. Specifically, $\beta_{TDi} = \beta_{TDi,-1} + \beta_{TDi,0} + \beta_{TDi,+1}$ and $\beta_{TMi} = \beta_{TMi,-1} + \beta_{TMi,0} + \beta_{TMi,+1}$. Hence, β_{TDi} (β_{TMi}) represents the comovement of a sample stock i 's residual turnover with the average residual turnover of DOM (MNC) stocks. We also obtain the corresponding coefficients of β_{TDc} and β_{TMc} for each of the control firms. *PRE* and *POST* represent year $t-1$ and $t+1$ surrounding the MNC initiation year. Standard errors are in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 6
Multinational Initiators and Mutual Fund Holdings

<i>Panel A: Mutual Fund Holdings of Multinational Initiators</i>			
Fund-Level MNC Holding Quintile	PRE	POS	POST - PRE
1 (LOW_MFDIV)	1.560	0.915	-0.645***
2	0.810	0.700	-0.110***
3	0.617	0.651	0.034
4	0.473	0.641	0.167***
5 (HIGH_MFDIV)	0.497	0.696	0.199***
HIGH_MFDIV - LOW_MFDIV			0.844***
<i>Panel B: Mutual Fund Holdings of Control Firms</i>			
Fund-Level MNC Holding Quintile	PRE	POS	POST - PRE
1 (LOW_MFDIV)	1.370	1.274	-0.097
2	0.746	0.769	0.022
3	0.576	0.621	0.045
4	0.504	0.509	0.005
5 (HIGH_MFDIV)	0.460	0.433	-0.027
HIGH_MFDIV - LOW_MFDIV			0.070
<i>Panel C: Difference in Mutual Fund Holdings between MNC Initiators and Control Firms</i>			
Fund-Level MNC Holding Quintile	PRE	POS	POST - PRE
1 (LOW_MFDIV)	0.190	-0.358***	-0.548***
2	0.064	-0.069*	-0.133**
3	0.041	0.030	-0.010
4	-0.031	0.132	0.162*
5 (HIGH_MFDIV)	0.037	0.263***	0.226***
HIGH_MFDIV - LOW_MFDIV			0.774***

This table presents the results of mutual fund holdings for multinational initiators and their PSM matched peers (see Table 2 for detail on the PSM method). We classify mutual funds into groups of relative preference for multinationals. Specifically, we employ the following equation to measure the average international diversification across all stocks owned by fund f in year t :

$$MFDIV_{f,t} = \sum w_{f,i,t} * DIV_{i,t} \quad (8)$$

where $MFDIV_{f,t}$ is the fund-level international diversification in year t ; $w_{f,i,t}$ is the investment weight of stock i held by fund f in year t ; and $DIV_{i,t}$ is the foreign sale ratio of stock i in year t . The summation represents all common stocks held by fund f in year t . $MFDIV_{f,t}$ is positively related to the fund's preference for multinationals. We then sort all funds into quintiles based on their yearly $MFDIV$ values. For each MNC initiator in our sample, we calculate the change in its holding by mutual fund f from the year before to the year after the MNC initiation. We then aggregate the holding changes across all MNC initiators for fund f in year t . Similarly, we compute the holding changes for the matched control firms. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 7
The Mutual Fund Flow-Induced Trading Effects on Stock Returns

	Multinational Firms			Domestic Firms		
	(1)	(2)	(3)	(4)	(5)	(6)
FIT_MNC	0.735*** (2.77)	0.863** (2.42)	1.458* (1.80)	0.138 (0.31)	0.225 (0.41)	0.127 (0.15)
FIT_DOM	0.031 (0.31)	0.171 (1.18)	0.080 (0.37)	0.735*** (3.87)	0.639*** (2.79)	1.032* (1.73)
R_IND		0.371*** (25.19)	0.379*** (24.49)		0.380*** (15.63)	0.356*** (11.99)
LagFIT_MNC			-0.494* (-1.81)			-0.011 (-0.01)
LagFIT_DOM			-0.480** (-2.39)			-0.394*** (-2.95)
MKT	1.061*** (68.34)	0.674*** (29.67)	0.659*** (23.87)	0.99*** (74.51)	0.637*** (21.38)	0.642*** (19.67)
SMB	0.663*** (25.39)	0.55*** (19.67)	0.556*** (19.76)	0.826*** (30.68)	0.700*** (26.42)	0.722*** (21.39)
HML	0.113*** (3.64)	0.166*** (5.29)	0.179*** (5.19)	0.199*** (5.37)	0.201*** (5.33)	0.193*** (4.66)
UMD	-0.086*** (-3.95)	-0.056*** (-3.58)	-0.042* (-1.80)	-0.081*** (-4.44)	-0.063*** (-3.47)	-0.049** (-2.43)
Intercept	-0.006 (-1.38)	-0.008* (-1.87)	0.024 (0.39)	0.016 (0.66)	-0.008*** (-3.07)	0.521 (1.62)
R-Squared	0.432	0.487	0.547	0.386	0.444	0.504

This table presents the regression results of monthly stock returns on mutual fund flow-induced trading measures and other control variables. First, we compute flow-induced trading for each stock i in mutual fund f in month m , $FIT_{f,i,m}$, as follows:

$$FIT_{f,i,m} = FLOW_{f,m} * \frac{SHR_{f,i,m}}{\sum_{k \in N} SHR_{k,i,m}} \quad (9)$$

where $SHR_{f,i,m}$ is the number of shares of stock i held by mutual fund f , and $SHR_{k,i,m}$ is the number of shares of stock i in fund k th in our sample of N domestic equity funds. Fund f 's dollar flow in month m , $FLOW_{f,m}$, is measured as in Eq. (10) in the text. Next, based on the fund-level leverage in quarter q (see Table 6 description) we classify all funds into MNC-favored funds (DOM-favored funds) if the fund-level international diversification is higher (lower) than the median value in that quarter. We then aggregate the flow-induced trading of stock i , $FIT_{f,i,m}$, across funds in the same preference groups and denote them as $FIT_MNC_{i,m}$ and $FIT_DOM_{i,m}$, respectively. Each year, we regress the monthly stock returns in years $t + 1$ and $t + 2$ on the two measures of monthly flow-induced trading and the four Fama-French-Carhart risk factors. We also control for the stock's monthly industry returns, R_IND , measured as a value-weighted return across all stocks in the same Fama-French 48 industries, and lagged values of the flow-induced trading measures. We then obtain the yearly average coefficients for all MNC and DOM stocks separately and report the time-series average of these coefficients with the Newey-West adjusted t -statistics. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 8
Multinational Initiators and Return Comovement Using Univariate Regressions

<i>Panel A: Return Comovement of Multinational initiators</i>			
	PRE	POST	POST - PRE
Domestic Portfolio (β_{Di})	0.671*** (0.042)	0.492*** (0.034)	-0.180*** (0.054)
Multinational Portfolio (β_{Mi})	0.457*** (0.042)	0.726*** (0.045)	0.269*** (0.062)
$\Delta\beta_i = \beta_{Di} - \beta_{Mi}$	0.215*** (0.059)	-0.234*** (0.057)	-0.449*** (0.060)
<i>Panel B: Return Comovement of Control Firms</i>			
	PRE	POST	POST - PRE
Domestic Portfolio (β_{Dc})	0.711*** (0.033)	0.758*** (0.032)	0.047 (0.046)
Multinational Portfolio (β_{Mc})	0.421*** (0.037)	0.425*** (0.031)	0.004 (0.049)
$\Delta\beta_c = \beta_{Dc} - \beta_{Mc}$	0.290*** (0.049)	0.333*** (0.045)	0.043 (0.049)
<i>Panel C: Difference in Return Comovement of Multinational Initiators and Control Firms</i>			
	PRE	POST	POST - PRE
$\Delta\beta_D = \beta_{Di} - \beta_{Dc}$	-0.039 (0.053)	-0.266*** (0.046)	-0.225*** (0.065)
$\Delta\beta_M = \beta_{Mi} - \beta_{Mc}$	0.036 (0.056)	0.301*** (0.055)	0.266*** (0.074)
$\Delta\beta = \Delta\beta_D - \Delta\beta_M$	-0.075 (0.058)	-0.567*** (0.051)	-0.491*** (0.075)

This table presents the average return sensitivity for multinational initiators and their PSM matched peers (see Table 2 for detail on the PSM method) to two benchmark portfolios of multinational (MNC) stocks and domestic (DOM) stocks. Specifically, in each year t we run the following regression models:

$$R_{i,d} = \alpha_i + \beta_{Di}BMK_DOM_{res,d} + \gamma_i X_d + \varepsilon_{i,d} \quad (11a)$$

$$R_{i,d} = \alpha_i + \beta_{Mi}BMK_MNC_{res,d} + \gamma_i X_d + \varepsilon_{i,d} \quad (11b)$$

where $R_{i,d}$ is the return on MNC initiator i on day d . $BMK_DOM_{res,d}$ and $BMK_MNC_{res,d}$ are the residual returns of the DOM and MNC portfolios on day d , respectively after adjusting for their dependence on the Fama–French–Carhart (FFC) model. X_d includes the four factors in the FFC model, as described in Eq. (2). β_{Di} and β_{Mi} represent the excess comovements in return between an MNC initiator and the DOM and MNC benchmark portfolios, respectively. Similarly, we obtain the corresponding β_{Dc} and β_{Mc} for control firm c in the same year. *PRE* and *POST* represent year $t - 1$ and $t + 1$ surrounding the MNC initiation year. Standard errors are in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 9
Return Comovement for Low and High International Diversification

<i>Panel A. Return Comovement of Multinational Initiators</i>						
	Low DIV			High DIV		
	PRE	POST	POST - PRE	PRE	POST	POST - PRE
Domestic Portfolio (β_{Di})	0.498*** (0.049)	0.235*** (0.034)	-0.263*** (0.060)	0.825*** (0.106)	0.322*** (0.071)	-0.502*** (0.128)
Multinational Portfolio (β_{Mi})	0.195*** (0.049)	0.428*** (0.051)	0.233*** (0.071)	0.371*** (0.097)	0.477*** (0.110)	0.107 (0.147)
$\Delta\beta_i = \beta_{Di} - \beta_{Mi}$	0.303*** (0.069)	-0.193*** (0.062)	-0.496*** (0.106)	0.454*** (0.144)	-0.155 (0.131)	-0.609*** (0.231)
<i>Panel B. Difference in Return Comovement of Multinational Initiators and Control Firms</i>						
	Low DIV			High DIV		
	PRE	POST	POST - PRE	PRE	POST	POST - PRE
$\Delta\beta_D = \beta_{Di} - \beta_{Dc}$	-0.190*** (0.062)	-0.463*** (0.051)	-0.272*** (0.075)	0.254* (0.131)	-0.327*** (0.106)	-0.584*** (0.154)
$\Delta\beta_M = \beta_{Mi} - \beta_{Mc}$	-0.010 (0.071)	0.196*** (0.073)	0.207** (0.099)	0.067 (0.143)	0.224 (0.145)	0.161 (0.197)
$\Delta\beta = \Delta\beta_D - \Delta\beta_M$	-0.180* (0.106)	-0.658*** (0.101)	-0.478*** (0.143)	0.187 (0.230)	-0.557*** (0.212)	-0.745** (0.290)

This table presents the average return sensitivity for 1,173 multinational initiators and their PSM matched peers (see Table 2 for detail on the PSM method). Specifically, every year we classify multinational initiators in the cross-section into low and high international diversification (DIV) groups based on the median foreign sale ratio. We then run the following regression to estimate the excess return comovements of each sample firm with the portfolios of domestic (DOM) stocks and the portfolio of multinational (MNC) stocks corresponding to the size of the DIV taken up by the firm:

$$RET_{i,d} = \alpha_i + \beta_{Di}BMK_DOM_{res,d} + \beta_{Mi}BMK_MNC_{res,d} + \gamma X_d + \varepsilon_i, \quad (3)$$

where $RET_{i,d}$ is the return on MNC initiator i on day d . $BMK_DOM_{res,d}$ and $BMK_MNC_{res,d}$ are the residual returns of the DOM and MNC portfolios on day d , respectively after adjusting for their dependence on the Fama–French–Carhart (FFC) model. X_d includes the four factors in the FFC model, as described in Eq. (2). β_{Di} and β_{Mi} represent the excess comovements in return between an MNC initiator and the DOM and MNC benchmark portfolios, respectively. Similarly, we obtain the corresponding β_{Dc} and β_{Mc} for control firm c in the same year. PRE and $POST$ represent year $t - 1$ and $t + 1$ surrounding the MNC initiation year. There are 904 low and 269 high DIV observations, respectively. Standard errors are in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 10
Return Comovement for MNC Initiators with Single and Multiple Foreign Markets

<i>Panel A. Return Comovement of Multinational Initiators</i>						
	Single Market			Multiple Markets		
	PRE	POST	POST – PRE	PRE	POST	POST – PRE
Domestic Portfolio (β_{Di})	0.578*** (0.056)	0.243*** (0.037)	-0.335*** (0.068)	0.565*** (0.075)	0.278*** (0.055)	-0.287*** (0.093)
Multinational Portfolio (β_{Mi})	0.164*** (0.053)	0.380*** (0.056)	0.216*** (0.077)	0.367*** (0.077)	0.548*** (0.085)	0.181* (0.115)
$\Delta\beta_I = \beta_{Di} - \beta_{Mi}$	0.414*** (0.077)	-0.137** (0.067)	-0.552*** (0.116)	0.198* (0.108)	-0.270*** (0.101)	-0.468*** (0.175)
<i>Panel B. Difference in Return Comovement of Multinational Initiators and Control Firms</i>						
	Single Market			Multiple Markets		
	PRE	POST	POST – PRE	PRE	POST	POST – PRE
$\Delta\beta_D = \beta_{Di} - \beta_{Dc}$	-0.054 (0.070)	-0.461*** (0.056)	-0.407*** (0.086)	-0.150* (0.095)	-0.379*** (0.082)	-0.226** (0.110)
$\Delta\beta_M = \beta_{Mi} - \beta_{Mc}$	-0.020 (0.079)	0.127* (0.079)	0.147 (0.109)	0.059 (0.110)	0.341*** (0.114)	0.286* (0.152)
$\Delta\beta = \Delta\beta_D - \Delta\beta_M$	-0.034 (0.119)	-0.588*** (0.108)	-0.554*** (0.158)	-0.209 (0.168)	-0.721*** (0.168)	-0.512** (0.221)

This table presents the average return sensitivity for 1,173 multinational initiators and their PSM matched peers (see Table 2 for detail on the PSM method). Specifically, every year we classify multinational initiators in the cross-section into single and multiple export market groups. We then run the following regression to estimate the excess return comovements of each sample firm with the portfolios of domestic (DOM) stocks and the portfolio of multinational (MNC) stocks corresponding to the firm's number of export markets:

$$RET_{i,d} = \alpha_i + \beta_{Di}BMK_DOM_{res,d} + \beta_{Mi}BMK_MNC_{res,d} + \gamma_i X_d + \varepsilon_{i,d} \quad (3)$$

where $RET_{i,d}$ is the return on MNC initiator i on day d . $BMK_DOM_{res,d}$ and $BMK_MNC_{res,d}$ are the residual returns of the DOM and MNC portfolios on day d , respectively after adjusting for their dependence on the Fama–French–Carhart (FFC) model. X_d

includes the four factors in the FFC model, as described in Eq. (2). β_{Di} and β_{Mi} represent the excess comovements in return between an MNC initiator and the DOM and MNC benchmark portfolios, respectively. Similarly, we obtain the corresponding β_{Dc} and β_{Mc} for control firm c in the same year. *PRE* and *POST* represent year $t - 1$ and $t + 1$ surrounding the MNC initiation year. There are 778 single and 417 multiple export market MNC initiators, respectively. Standard errors are in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 11
Return Comovement for MNC Initiators by Sub-Periods

Panel A. Return Comovement of Multinational Initiators						
	1979 - 1997			2000 - 2016		
	PRE	POST	POST - PRE	PRE	POST	POST - PRE
Domestic Portfolio (β_{Di})	0.629*** (0.078)	0.215*** (0.052)	-0.414*** (0.093)	0.455*** (0.071)	0.293*** (0.053)	-0.162* (0.089)
Multinational Portfolio (β_{Mi})	0.081 (0.064)	0.254*** (0.072)	0.174* (0.097)	0.273*** (0.071)	0.466*** (0.088)	0.194* (0.113)
$\Delta\beta_i = \beta_{Di} - \beta_{Mi}$	0.548*** (0.101)	-0.039 (0.089)	-0.588*** (0.150)	0.182* (0.100)	-0.174* (0.103)	-0.356** (0.160)
Panel B. Difference in Return Comovement of Sample Firms and Control Firms						
	1979 - 1997			2000 - 2016		
	PRE	POST	POST - PRE	PRE	POST	POST - PRE
$\Delta\beta_D = \beta_{Di} - \beta_{Dc}$	0.111 (0.096)	-0.356*** (0.077)	-0.465*** (0.116)	-0.340*** (0.093)	-0.477*** (0.079)	-0.137 (0.114)
$\Delta\beta_M = \beta_{Mi} - \beta_{Mc}$	-0.110 (0.099)	0.148 (0.095)	0.261* (0.137)	0.039 (0.114)	0.358*** (0.113)	0.319** (0.151)
$\Delta\beta = \Delta\beta_D - \Delta\beta_M$	0.221 (0.156)	-0.505*** (0.136)	-0.726*** (0.201)	-0.379** (0.168)	-0.834*** (0.151)	-0.455** (0.216)

This table presents the average return sensitivity for multinational initiators and their PSM matched peers (see Table 2 for detail on the PSM method) to two benchmark portfolios of multinational (MNC) stocks and domestic (DOM) stocks. Specifically, in each year t we run the following regression model:

$$RET_{i,d} = \alpha_i + \beta_{Di}BMK_DOM_{res,d} + \beta_{Mi}BMK_MNC_{res,d} + \gamma_i X_d + \varepsilon_{i,d} \quad (3)$$

where $RET_{i,d}$ is the return on MNC initiator i on day d . $BMK_DOM_{res,d}$ and $BMK_MNC_{res,d}$ are the residual returns of the DOM and MNC portfolios on day d , respectively after adjusting for their dependence on the Fama–French–Carhart (FFC) model. X_d includes the four factors in the FFC model, as described in Eq. (2). β_{Di} and β_{Mi} represent the excess comovements in return between an MNC initiator and the DOM and MNC benchmark portfolios, respectively. Similarly, we obtain the corresponding

β_{Dc} and β_{Mc} for control firm c in the same year. *PRE* and *POST* represent year $t - 1$ and $t + 1$ surrounding the MNC initiation year. There are 453 and 329 observations for the 1979 – 1997 and 2000 – 2016 periods, respectively. Standard errors are in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Appendix

TABLE A1
Return Comovement of Multinational Initiating Firms (Defined by Subsidiaries)

<i>Panel A: Return Comovement of Multinational Initiators</i>			
	PRE	POST	POST - PRE
Domestic Portfolio (β_{Di})	0.680*** (0.064)	0.364*** (0.043)	-0.317*** (0.078)
Multinational Portfolio (β_{Mi})	0.404*** (0.067)	0.610*** (0.080)	0.206** (0.105)
$\Delta\beta_i = \beta_{Di} - \beta_{Mi}$	0.276*** (0.093)	-0.247*** (0.091)	-0.523*** (0.142)
<i>Panel B: Return Comovement of Control Firms</i>			
	PRE	POST	POST - PRE
Domestic Portfolio (β_{Dc})	0.686*** (0.047)	0.693*** (0.047)	0.007 (0.066)
Multinational Portfolio (β_{Mc})	0.316*** (0.069)	0.240*** (0.069)	-0.076 (0.098)
$\Delta\beta_c = \beta_{Dc} - \beta_{Mc}$	0.370*** (0.083)	0.453*** (0.084)	0.083 (0.125)
<i>Panel C: Difference in Return Comovement of Multinational Initiators and Control Firms</i>			
	PRE	POST	POST - PRE
$\Delta\beta_D = \beta_{Di} - \beta_{Dc}$	-0.006 (0.080)	-0.329*** (0.064)	-0.323*** (0.090)
$\Delta\beta_M = \beta_{Mi} - \beta_{Mc}$	0.088 (0.096)	0.371*** (0.106)	0.282** (0.124)
$\Delta\beta = \Delta\beta_D - \Delta\beta_M$	-0.095 (0.133)	-0.700*** (0.134)	-0.605*** (0.175)

This table presents the average return sensitivity for 486 multinational initiators (defined by subsidiaries) and their PSM matched peers (see Table 2 for detail on the PSM method) to two benchmark portfolios of multinational (MNC) stocks and domestic (DOM) stocks. Specifically, in each year t we run the following regression model:

$$RET_{i,d} = \alpha_i + \beta_{Di}BMK_DOM_{res,d} + \beta_{Mi}BMK_MNC_{res,d} + \gamma_i X_d + \varepsilon_{i,d} \quad (3)$$

where $RET_{i,d}$ is the return on MNC initiator i on day d . $BMK_DOM_{res,d}$ and $BMK_MNC_{res,d}$ are the residual returns of the DOM and MNC portfolios on day d , respectively after adjusting for their dependence on the Fama–French–Carhart (FFC) model. X_d includes the four factors in the FFC model, as described in Eq. (2). β_{Di} and β_{Mi} represent the excess comovements in return between an MNC initiator and the DOM and MNC benchmark portfolios, respectively. Similarly, we obtain the corresponding β_{Dc} and β_{Mc} for control firm c in the same year. *PRE* and *POST* represent year $t - 1$ and $t + 1$ surrounding the MNC initiation year. Standard errors are in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE A2
Return Comovement for MNC Initiators by Exchange Volatility

<i>Panel A. Return Comovement of Multinational Initiators</i>						
	High EX Volatility			Low EX Volatility		
	PRE	POST	POST - PRE	PRE	POST	POST - PRE
Domestic Portfolio (β_{Di})	0.459*** (0.078)	0.220*** (0.055)	-0.239** (0.096)	0.630*** (0.055)	0.272*** (0.038)	-0.357*** (0.067)
Multinational Portfolio (β_{Mi})	0.294*** (0.073)	0.335*** (0.078)	0.040 (0.107)	0.206*** (0.054)	0.491*** (0.059)	0.285*** (0.080)
$\Delta\beta_i = \beta_{Di} - \beta_{Mi}$	0.164 (0.107)	-0.115 (0.096)	-0.279* (0.159)	0.423*** (0.077)	-0.219*** (0.070)	-0.642*** (0.122)
<i>Panel B. Difference in Return Comovement of Sample Firms and Control Firms</i>						
	High EX Volatility			Low EX Volatility		
	PRE	POST	POST - PRE	PRE	POST	POST - PRE
$\Delta\beta_D = \beta_{Di} - \beta_{Dc}$	-0.132 (0.099)	-0.388*** (0.081)	-0.254** (0.122)	-0.066 (0.068)	-0.453*** (0.057)	-0.387*** (0.081)
$\Delta\beta_M = \beta_{Mi} - \beta_{Mc}$	0.054 (0.112)	0.005 (0.112)	-0.045 (0.154)	-0.015 (0.078)	0.300*** (0.080)	0.315*** (0.109)
$\Delta\beta = \Delta\beta_D - \Delta\beta_M$	-0.186 (0.169)	-0.396*** (0.146)	-0.209 (0.218)	-0.051 (0.119)	-0.753*** (0.116)	-0.702*** (0.159)

This table presents the average return sensitivity for multinational initiators and their PSM matched peers (see Table 2 for detail on the PSM method) to two benchmark portfolios of multinational (MNC) stocks and domestic (DOM) stocks in the periods of high and low exchange rate (EX) volatility. We calculate the yearly historical volatility of the USD index (DXY) and classify the high and low volatility periods based on its median value.

In each year t we run the following regression model:

$$RET_{i,d} = \alpha_i + \beta_{Di}BMK_DOM_{res,d} + \beta_{Mi}BMK_MNC_{res,d} + \gamma_i X_d + \varepsilon_{i,d} \quad (3)$$

where $RET_{i,d}$ is the return on MNC initiator i on day d . $BMK_DOM_{res,d}$ and $BMK_MNC_{res,d}$ are the residual returns of the DOM and MNC portfolios on day d , respectively after adjusting for their dependence on the Fama–French–Carhart (FFC) model. X_d

includes the four factors in the FFC model, as described in Eq. (2). β_{Di} and β_{Mi} represent the excess comovements in return between an MNC initiator and the DOM and MNC benchmark portfolios, respectively. Similarly, we obtain the corresponding β_{Dc} and β_{Mc} for control firm c in the same year. *PRE* and *POST* represent year $t - 1$ and $t + 1$ surrounding the MNC initiation year. Standard errors are in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE A3
Return Comovement Stability After Multinational Initiation Year

	T+1 (POST)	T+2	T+3	T+4	T+5	(T+2) - (T+1)	(T+3) - (T+2)	(T+4) - (T+3)	(T+5) - (T+4)
Domestic Portfolio (β_{0i})	0.255*** (0.031)	0.283*** (0.049)	0.201*** (0.049)	0.182*** (0.05)	0.132** (0.051)	0.028 (0.058)	-0.081 (0.069)	-0.019 (0.07)	-0.050 (0.071)
Multinational Portfolio (β_{1i})	0.439*** (0.047)	0.814*** (0.057)	0.84*** (0.058)	0.886*** (0.059)	0.804*** (0.058)	0.375*** (0.074)	0.026 (0.081)	0.046 (0.082)	-0.082 (0.082)
$\Delta\beta_i = \beta_{0i} - \beta_{1i}$	-0.184*** (0.056)	-0.532*** (0.075)	-0.639*** (0.075)	-0.704*** (0.077)	-0.672*** (0.077)	-0.469*** (0.114)	-0.107 (0.123)	-0.066 (0.122)	0.032 (0.125)

This table presents the average return sensitivity for multinational initiators to two benchmark portfolios of multinational (MNC) stocks and domestic (DOM) stocks after the even year. Specifically, in each year t we run the following regression model:

$$RET_{i,d} = \alpha_i + \beta_{Di}BMK_DOM_{res,d} + \beta_{Mi}BMK_MNC_{res,d} + \gamma_i X_d + \varepsilon_{i,d} \quad (3)$$

where $RET_{i,d}$ is the return on MNC initiator i on day d . $BMK_DOM_{res,d}$ and $BMK_MNC_{res,d}$ are the residual returns of the DOM and MNC portfolios on day d , respectively after adjusting for their dependence on the Fama–French–Carhart (FFC) model. X_d includes the four factors in the FFC model, as described in Eq. (2). β_{Di} and β_{Mi} represent the excess comovements in return between an MNC initiator and the DOM and MNC benchmark portfolios, respectively. The right panel reports the test for the mean difference between two consecutive years. Standard errors are in brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.