

Working Paper

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Mark Lang

University of North Carolina at Chapel Hill

Mark G. Maffett

Booth School of Business

University of Chicago

James D. Omartian

Stephen M. Ross School of Business

University of Michigan

Roger Silvers

University of Utah

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Mark Lang, University of North Carolina at Chapel Hill

Mark Maffett, Chicago Booth

James Omartian, University of Michigan

Roger Silvers, University of Utah

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Regulatory Cooperation and Foreign Portfolio Investment

Abstract: We investigate the effect of cross-border regulatory cooperation on global mutual fund portfolio allocations, focusing on the Multilateral Memorandum of Understanding (MMoU), a non-binding information sharing arrangement between global securities regulators. Connections between the US Securities and Exchange Commission (SEC) and other foreign regulators increase the SEC's ability to pursue US cross-listed firms. We find that foreign investment in US-cross-listed firms domiciled in the signatory country increases significantly relative to non-cross-listed firms from that country. We find the strongest effects of the MMoU for non-US investors trading on non-US exchanges, which suggests that there are significant spillover effects associated with regulatory cooperation. This increase in foreign investment is particularly pronounced for investors from geographically, linguistically, and culturally distant countries where information asymmetry is high, and also for dedicated investors who are more reliant on public information and oversight. Consistent with the increased US regulatory oversight driving the results, the increase in foreign investment is concentrated among US-cross-listed firms that are SEC registrants, firms from countries that had weak prior regulatory links to the US, and firms from investor countries that are closely aligned with the US.

Keywords: Securities Regulation, Foreign Portfolio Investment; Regulatory Bonding.

1. Introduction

In countries where domestic sources of funding are limited, foreign portfolio investment is an important source of outside financing (Bekaert et al. 2002). However, aspects of a country's institutional infrastructure, such as limited regulatory oversight and weak shareholder protection, can limit foreign investment in many countries (Leuz et al. 2008). One potential approach that firms can use to overcome these investment barriers is to commit to stricter monitoring by cross-listing on a securities exchange in a country with greater regulatory oversight, such as the United States (Károlyi 2006, 2012). However, the effectiveness of such regulatory bonding depends, in large part, on the willingness of regulators in the firm's home country to cooperate with foreign regulators. In particular, it has historically been very difficult for a regulator such as the SEC to access information and enforce US securities laws in foreign countries (even for cross-listed firms) because the SEC's effective jurisdiction is largely limited to the US (e.g., Siegel, 2005; Silvers 2017a). As a result, overcoming structural impediments to foreign investment through cross-listing does not generally yield SEC oversight that is comparable to domestic securities.

Increasingly, the SEC and other regulators have sought to use cooperative information-sharing agreements with foreign regulators, such as memoranda of understanding (MOUs), to overcome obstacles to cross-border oversight. MOUs are particularly interesting because they are neither treaties nor formal regulatory agreements, but rather are "soft law" indicating *an intent* to cooperate.¹ The events of September 11, 2001 accelerated efforts of the International Organization of Securities Commissioners (IOSCO) to create a mechanism for information-sharing and enforcement cooperation between securities regulators across countries. The result was IOSCO's Multilateral Memorandum of Understanding (MMoU), which comprises the most comprehensive

¹ MOUs have been used to facilitate cooperation in a wide range of settings including climate change, labor relations, nuclear weapons and anti-ballistic missiles limitation, extradition, refugee settlement, and aircraft hijacking.

and rigorous standards of information sharing and cooperation to date. The US was among the first countries to sign the MMoU (in 2002), with over one hundred other countries joining from 2002 to 2017. Once a regulator has qualified for and signed the MMoU, it has the right to request information and cooperation from the other countries in the MMoU network. As a result, foreign regulators from countries signing the MMoU after the U.S. signed in 2002 committed themselves to providing information to and cooperation with (among others) the US's SEC.

We have two primary goals in this paper. First, we use the staggered adoption of the MMoU to assess the impact of cooperative regulatory agreements on foreign portfolio investment. A primary objective of the MMoU is to enhance investors' confidence in cross-border regulatory oversight. To the extent that investors perceive the MMoU as enhancing oversight, we expect it to influence their willingness to make cross-border investments. Our second goal is to use detailed data on changes in global mutual fund portfolio allocations to investigate who is motivated to increase their investment positions in firms affected by the MMoU—based on characteristics of the signing country, the fund country, the type of investor, the stock exchange, and the target firm. In particular, MMoU oversight constitutes a public good in the sense that, while the primary mandate of the SEC is to protect US investors and exchanges, the benefits of incremental oversight are non-excludable (other investors and exchanges are not excluded from any benefits) and non-rivalrous (use by one party does not reduce availability to others). As a result, the changes in investment motivated by the increased protections derived from the MMoU could accrue to a wide range of investors and exchanges—not only US investors or exchanges. By examining changes in the mix of investors and their choice of trading venue, we can explore the potential spillovers from SEC oversight for non-US investors in non-US stocks trading on non-US markets.

From a research design perspective, the MMoU provides a powerful setting to identify the

effects of cooperative regulatory agreements on foreign investment and the incidence of any regulatory spillovers. Because we expect SEC enforcement efforts to focus on US-cross-listed firms, we can better isolate the effect of the MMoU by comparing changes in foreign ownership in US-cross-listed firms to the total ownership (of all firms) by the same funds in the same country. The within-country comparison between cross-listed (treated) and domestic-listed (control) stocks effectively controls for a wide range of other factors that could affect institutional investment including macroeconomic shocks, investor preferences, and other changes in regulation at the country level. Additionally, the MMoU adoption dates are staggered, which permits us to better isolate the effect of adopting the MMoU from other changes in investor preferences.

Looking first at whether the adoption of the MMoU affects institutional investment in general, we document a statistically and economically significant 5.4 percentage point increase in the tilt of funds' holdings toward US-cross-listed firms; that is, a tilt towards US-cross-listed firms domiciled in MMoU-signing countries relative to non-US-cross-listed firms in the same country. Funds appear to increase both their existing holdings in cross-listed firms (i.e., the intensive margin) as well as the number of cross-listed stocks in which they invest (i.e., the extensive margin). We assess the reasonableness of the parallel trends assumption by plotting the MMoU treatment effect in event time, and find that none of the counterfactual treatment effects are statistically different from zero, while after the signing of the MMoU, the coefficient estimate is positive and significant.

Having documented that institutional investors appear to respond to a country's signing of the MMoU, the remainder of our analyses examine cross-sectional variation in this response. These analyses serve (at least) two purposes: First, to the extent that results are strongest where predicted, they provide further confidence that we can attribute the earlier results to the MMoU. Second, and

more importantly from the standpoint of regulators and other market participants, our analysis assists in identifying the parties who derive the most value from the additional oversight provided by the MMoU.²

We begin by separately examining the effect of the MMoU on local and foreign institutions. We predict that, absent oversight, foreign institutions are likely to be at an inherent information disadvantage relative to local institutions and, therefore, stand to benefit more from the enhanced external oversight associated with the MMoU.³ Consistent with this prediction, we find that the observed increase in investment after the MMoU is driven by foreign institutions. The point estimate for investment by domestic institutions is negative suggesting that, if anything, there may be a substitution from (better informed) domestic investors to (less informed) foreign institutions following the signing of the MMoU.

In our next set of analyses, we further split foreign institutions based on whether they are based in the US or in other countries. While the primary mandate of the SEC is to protect US investors, there are several reasons to believe that non-US investors may be primary beneficiaries of enhanced SEC oversight. Prior research documents that because of their scale, resources, and substantial research capacity, US institutional investors tend to have an informational advantage relative to other foreign investors (e.g., Albuquerque et al. 2009; Ferreira et al. 2017). Furthermore, the Securities Exchange Act of 1934 does not apply to foreign investors trading foreign securities on foreign exchanges (“f-cubed” cases), even if the shares are cross-listed in the US. Because US institutions are more likely to hold cross-listed shares in the US, they will naturally have stronger

² We use the terms “value” and “benefit” for parsimony to indicate the revealed preferences of investors as reflected by increases in their portfolio holdings. For example, if foreign investors increase their portfolio tilt toward US-cross-listed stocks relative to local investors following the MMoU signing, we interpret that as evidence that foreign investors value (benefit from) the enhanced oversight associated with the MMoU more highly than do local investors.

³ We refer to “information” disadvantage, but the issue is likely to include not only access to firm-specific information, but also familiarity with and access to the legal system, cultural norms and other country-level institutions.

legal protection in general, so the incremental MMoU effect will be less pronounced.⁴ The fact that US investors have preexisting information and legal advantages relative to non-US investors in cross-listed firms suggests that the incremental benefits of the MMoU could be larger for non-US investors. To the extent that non-US investors are primary beneficiaries of the additional oversight associated with the MMoU, it suggests significant spillover effects of SEC monitoring.

Separating foreign investment into US and non-US investment, we find that non-US investment in US-cross-listed firms increased by 6.8 percentage points after the signing of the MMoU. The change in investment by US investors is positive (2.4 percentage points) but not statistically significant, and the difference between US funds and non-US funds is significant, suggesting that non-US investors are the primary beneficiaries of the increase in SEC oversight accompanying the MMoU. To further explore the spillover effect of SEC oversight on non-US investors, we examine changes in the magnitude of the MMoU effect around the Supreme Court decision in *Morrison vs. National Australia Bank* (*Morrison*), which substantially limited the legal rights of non-US investors in US courts. If the stronger result for non-US investors reflects the limited access of non-US investors to the US legal system, the MMoU effect should become stronger for non-US investors following *Morrison* (i.e., public oversight becomes more important because private legal action is limited). Results splitting pre- and post-*Morrison* are consistent with predictions; the MMoU effect is evident in both sub-periods but is significantly stronger post-*Morrison*.

To further assess the benefits associated with the MMoU for non-US investors, we split the sample based on attributes of the investor/investee country-pair and the investment strategy of the

⁴ In particular, there is likely a substitution effect between public oversight and private access to legal recourse. To the extent that US investors are better protected by the US legal system relative to foreign investors, they are likely to be less reliant on firm-level oversight.

institutional investor. In particular, if the increase in holdings by non-US foreign institutions reflects a decrease in information asymmetry, we would expect it to vary cross-sectionally based on the extent of the information disadvantage between the foreign investor and the target (Choe et al. 2005). To examine this prediction, we compare the size of the MMoU effect across different investor country/target country pairs. Consistent with the MMoU reducing the relative information disadvantage faced by foreign investors, we find that foreign institutions more likely to suffer from the greatest information asymmetry with respect to the investee country (as captured by the two countries: being geographically farther apart, having different languages, not having a historic colonial connection, and having a high degree of distrust), place more value on the additional oversight associated with the MMoU.

If the information effect of the MMoU is an important determinant of institutions' responses, we would also expect it to be larger for foreign institutions more reliant on information and ongoing governance oversight. Following research such as Borochin and Yang (2017), which suggests that dedicated investors with longer investment horizons are attracted to firms with better transparency and governance, we predict that dedicated (i.e., long-term) investors will increase their holdings more in response to the MMoU relative to transient (i.e., short-term) investors. Consistent with this prediction, we find that the increase in ownership for dedicated investors is more than twice as large as the increase by transient investors.

In our next set of analyses, we investigate variation in the effect of the MMoU based on the extent of SEC involvement. Because the SEC has limited jurisdiction over unregistered US listings, we expect that if the increase in US oversight is the reason non-US foreign investors increase their holdings, it should be concentrated in firms that are directly subject to SEC oversight.⁵ Consistent

⁵ This analysis also has the advantage of implicitly controlling for other factors that might shift institutional investor interest to US-traded firms more generally. For example, if the increase in holdings of US cross-listed firms reflects a

with SEC oversight being a primary driver of the investor response to the MMoU, we find evidence of a significant increase in non-US foreign ownership of SEC-registered ADRs but no evidence of an increase in ownership of non-registered ADRs.

Similarly, if the SEC's involvement is an important determinant of the impact of the MMoU, we expect that for countries with weak economic ties to the US and no preexisting bilateral cooperation agreements with the SEC, the incremental oversight associated with the MMoU should be more pronounced. Splitting countries based on preexisting ties to the US, we find that the effect of the MMoU was particularly pronounced for signatory (i.e., investee) countries without an existing working relationship with the SEC and with weak economic ties to the US.

Relatedly, non-US investors likely differ in the extent to which they are aware of, and confident in, the efficacy of the US government in general and the SEC in particular, which could result in variation in *investor*-countries' responses to the MMoU. We find that, following adoption, the tilt toward U.S. cross-listed firms by non-U.S. foreign investors is weaker for those more distantly linked to the US in terms of UN voting and political systems.

The preceding analyses suggest that the effect of the MMoU is most pronounced for non-US investors facing high information asymmetry with previously limited access to SEC oversight and enforcement. In our final set of analyses, we investigate whether the increased foreign non-US ownership occurs primarily on the US exchanges or in the firm's domestic market. In particular, increasing non-US ownership in U.S. ADRs could lead to increased holdings that could occur in US or foreign exchanges. Whether an investor chooses to hold shares in the underlying security on the firm's home market or in the ADR depends on the tradeoff between the likely lower transactions costs, reduced taxation, and currency risk of the home market relative to the enhanced

preference for US-listed stocks unrelated to the MMoU, we should observe the effect for US cross-listed stocks irrespective of SEC registrant status.

protection of the US legal system provided by the ADR. To the extent that the MMoU increases public oversight and hence reduces the importance of the private right to legal action, we would also expect it to increase the relative attractiveness of trading shares on the firm's local market. Consistent with this prediction, we find that the majority of the increase in holdings by non-US foreign institutions occurs in the underlying shares traded on the firm's home exchange rather than in the cross-listed shares traded via an ADR in the US. Coupled with the preceding result, this suggests that the effects of the increase in SEC oversight accompanying the MMoU occur primarily *outside* US markets. Taken as a whole, our results provide evidence of a significant regulatory spillover in the sense that the efforts of a US regulator (the SEC) appear to primarily affect non-US investors trading non-US stocks on non-US exchanges.

Our findings make several important contributions to the literature. First, we provide, to our knowledge, the first evidence of cross-border spillovers from increased regulatory cooperation and information sharing. As noted in Leuz and Wysocki (2016), the literature lacks evidence on “market- or economy-wide effects from regulation, such as externalities, information spillovers and/or network effects.” While the traditional mandate of a regulator such as the SEC is to protect US investors and oversee US exchanges, our evidence suggests that networks of cooperative regulatory agreements, which increase US oversight abroad, can have substantial spillover effects for non-US investors, non-US firms, and non-US exchanges.

Second, we provide novel evidence on the effects of the MMoU on the geographic mix of a firm's investors. Given the importance of foreign capital in economic growth and development, it is important to understand the extent to which changes in regulatory oversight affect an investor's willingness to invest abroad. We provide evidence that the MMoU affected foreign investors' preferences for firms, subject to increased regulatory oversight—and particularly the preferences

of those investors facing a significant information disadvantage.

Third, we provide evidence on the effects of legal bonding by cross-listing. Prior research debates the extent to which the benefits associated with cross-listing result primarily from increased regulatory oversight. Disentangling oversight effects is notoriously difficult given endogeneity in the choice and timing of cross-listing (e.g., Hail and Leuz, 2006) and limitations on the ability of the SEC to gather information and enforce US securities laws for non-US firms (Siegel, 2005). The MMoU provides a context in which oversight changes, while potential confounding factors such as firm choice, trading venue, changes in expected growth, capital structure, and legal standing are held relatively constant. Our evidence suggests that significant regulatory effects are associated with cross-listing in the sense that increases in oversight are associated with significant increases in foreign investment in US-cross-listed firms.

Overall, our evidence is particularly relevant as regulators and investors consider adopting and expanding information-sharing and cooperation arrangements (e.g., IOSCO is in the process of launching the Enhanced MMoU (EMMoU) to increase the powers of the MMoU).⁶

2. Institutional Background and Prior Literature

Our primary goal is to assess the impact of the MMoU on foreign portfolio investment.⁷ The MMoU is an instrument designed to cultivate cooperation across different jurisdictions, and requires regulators to adhere to standards for cross-border cooperation. The framework was established in May 2002, and dictates information sharing obligations for signatory countries such as the extent of the information shared, the permissible uses of this information, and any subsequent confidentiality obligations.

The MMoU has been more successful than previous attempts at achieving cross-border

⁶ See <https://www.iosco.org/about/?subsection=emmou> for further details.

⁷ The discussion in this section draws on the history of the MMoU and findings presented in Silvers (2017a).

regulatory cooperation because it was made a priority by major economies and enjoyed support from a range of countries, reflecting the increased demand for information sharing following the major terror attacks of the early 2000's. Prior to the MMoU, cross-country regulatory cooperation was limited to ad hoc investigations or support established through bilateral agreements. These approaches were fraught with difficulties and the progress they made in terms of expanding enforcement capacities was quite limited. The MMoU has been successful in remediating many of the shortcomings of previous efforts at regulatory cooperation.⁸

For major economies, the signing of the MMoU began in 2002 and continued thereafter. Variation in the adoption timing reflects differences in a country's process of deciding to participate, navigating legislative protocol, establishing required infrastructure, and obtaining IOSCO approval. Membership in the MMoU provides the right to vote within IOSCO (IOSCO 2005), as well as being a factor in decision-making by the IMF and the Financial Stability Board.

The SEC has participated actively in information sharing under the MMoU.⁹ Silvers (2017a,b) finds that the MMoU significantly increased cooperation among regulators, enforcement actions, and stock market liquidity. The types of enforcement cases most commonly pursued by the SEC under the MMoU include insider trading, financial reporting improprieties, and bribery under the Foreign Corrupt Practices Act. Our goal is to understand whether investors perceive benefits from the enhanced regulatory oversight provided by the MMoU, and, more importantly, which investors and markets are most affected.

Our focus on investors is important for several reasons. From the SEC's perspective, given

⁸ Between 2003 and 2016 there have been more than 22,489 annual information requests between regulators under the MMoU (<https://www.iosco.org/about/?subsection=mmou>).

⁹ In 2016 alone, the SEC reported that it made 1,027 requests for information from foreign regulators and received 636 requests from foreign regulators. Because the SEC does not report separate statistics for requests made under the MMoU versus other agreements or provide detail on specific information requests, we do not know what fraction of these requests were made pursuant to the MMoU.

that regulatory oversight is costly and the SEC's mandate primarily pertains to US investors and exchanges, it is informative to understand whether the primary beneficiaries of their efforts under the MMoU are US investors and exchanges. From IOSCO's perspective as a global regulator, it is important to understand the effectiveness of the network of MMoU signatories in influencing investor behavior and which investors and exchanges derive the greatest benefits. For local regulators who go through the costly vetting and other efforts required for membership, it is important to assess the extent to which signing the MMoU affects foreigners' willingness to invest in their country. More generally, managers, investors, and local stock exchanges are likely to be interested in the effect of regulatory oversight on the mix of investors attracted to the firm.

There is little existing research examining the effects of regulatory oversight on the global mix of investors in the firm. Ferreira and Matos (2008) examine the determinants of global institutional ownership and find, not surprisingly, that foreign holdings are higher for cross-listed firms.¹⁰ However, because firms self-select into cross-listing based on variables such as investor demand and growth options, and because many other factors are associated with cross-listing (such as the types of institutions that are permitted to invest in the stock), it is difficult to attribute the ownership structure of cross-listed firms to the effects of regulation. The MMoU represents a shock that is outside of the firm's control and is therefore less susceptible to self-selection concerns. In addition, the MMoU setting allows us to better identify the effects of regulatory oversight on investor clienteles because it provides a within-country control group less likely to be affected by the change in oversight and because adoption dates are staggered across countries over time.

Despite its importance in practice, we believe we are the first to examine regulatory

¹⁰ Several papers have investigated the effect of increased financial statement comparability associated with IFRS adoption on institutional ownership (e.g., DeFond et al. 2011; Yu and Wahid 2014; Florou and Pope 2012). The list of adoption dates reported in Table 1, Panel B provides no evidence of a correlation between the MMoU and IFRS adoption.

spillovers from the involvement of a foreign regulator in one country on investors in unaffiliated countries. The staggered adoption of the MMoU and its network effects provide an attractive setting to investigate such spillovers. Moreover, our investee-investor specific ownership data allow us to identify which types of investor and investee countries benefit most from such spillovers—holding constant the institutional investors’ portfolio holdings within a country, as well as attributes of the underlying firms (and, thus, any time-varying, firm-specific characteristics such as profitability, liquidity, and stock returns that could also potentially affect the mix of investors).

3. Research Design

3.1 The MMoU and Foreign Portfolio Investment

In our primary analysis, we focus on the effect of the MMoU on investment in US-cross-listed firms relative to non-cross-listed firms.¹¹ We adopt this focus for several reasons. First, cooperative regulatory agreements are designed to facilitate cross-border investment. Cross-listed firms provide an obvious scenario in which the SEC has clear jurisdiction to pursue the type of cross-border enforcement actions that cooperation under the MMoU is designed to enhance.

Second, foreign investors in cross-listed firms are likely to face a large information disadvantage relative to local investors in the domestic market (Choe et al. 2005), so additional oversight is particularly important. Similarly, once they invest, foreign investors face higher monitoring costs and hurdles to legal action relative to local investors who have better access to local legal resources and better understand the countries’ institutional environment and companies’ reporting activities. By increasing the capacity for cross-border oversight, cooperative regulatory

¹¹ We use the terms “foreign” and “local” to refer to the location of the investor relative to the domicile of the firm. For example, a US institution investing in shares of an Italian-domiciled firm (whether investing in the cross-listed shares on the US market or in the Italian market) would be considered a foreign investor with respect to that firm.

agreements permit regulators to better oversee the activities of firms that trade on multiple markets.

3.2 *Identification Strategy in the MMoU Setting*

A challenge in a regulatory study such as ours is in separating investment changes associated with a preference for increased oversight from those driven by changes in economic conditions. In this regard, the MMoU setting has several advantages to help identify the ownership effects of cooperative regulatory agreements. Specifically, because we expect the effect of the MMoU to be strongest for US-cross-listed firms, firms from the same country without a US cross-listing provide a natural control group for changes in foreign investors' general preferences for a given country at a particular time.¹² This permits within-country, within-investor comparison, which allows us to effectively control for country-level or investor-level effects which might be correlated with the signing of the MMoU; these effects might include institutional investment trends common to a particular country, macroeconomic shocks, and other contemporaneous country-level changes in regulation.

While the staggered MMoU adoption assists in identification, it is important to rule out other factors (e.g., that the timing of the regulations' implementation might be correlated with increases in investor interest in the signatory country for reasons such as economic growth or an improved political environment). The effect of country-wide variation is naturally controlled by the within-country design. Additionally, several other features of the MMoU setting help to mitigate this concern. First, countries signed on to the MMoU in a staggered fashion over more than a decade; the exact timing is largely driven by differences in countries' protocols for navigating the legislative process, establishing the required infrastructure, and obtaining IOSCO

¹² While within-country comparison of cross-listed to non-cross-listed firms implicitly controls for a wide range of other factors, it likely biases against detecting regulatory effects of the MMoU to the extent that there are potential spillover effects of oversight on non-cross-listed firms. Consequently, our results likely provide a lower bound for the overall effect of the MMoU.

approval. Thus, the specific timing of the completion of the process is unlikely to be in response to short-term changes in economic circumstances (Mulherin 2007). Second, our focus on foreign investment allows us to test a variety of cross-sectional predictions about the types of investor countries, investee countries, and firms most likely to be affected by the enhanced cross-border oversight. To the extent that the results from these cross-sectional comparisons are consistent with our predictions, they provide further support for our inferences and insight into the specific effects of the MMoU. Third, we can control for changes in other factors such as profitability, capital structure and liquidity for US-cross-listed firms relative to non-cross-listed firms to ensure that those factors do not drive our empirical results. Finally, in our empirical analyses focusing on parallel trends, we specifically examine (and find no evidence of) a relative increase in foreign investment for the cross-listed stocks prior to the adoption of the MMoU (see Section 4.2 for further details).

3.3 *Regression Model*

Our primary regression analysis examines changes in foreign mutual fund investment in US-cross-listed firms following the signing of the MMoU in a firm's home country. To control for unobserved heterogeneity in economic factors in an investee country at a given point in time, we use non-US-cross-listed firms as a benchmark. As a result, our tests focus on changes in investor preferences for cross-listed stocks in a given country relative to their overall preferences for stocks from that country. Specifically, we construct our measure of foreign investment, *PercentUSXlistedInvestment_{ijt}*, by aggregating, for each quarter and fund-country/firm-country pair, the ratio of investment in US-cross-listed firms to total investment—that is, for firm n , fund

m , firm-country i , fund-country j , quarter t , and all firms that are cross-listed in the US U_t .¹³

$$PercentUSXlistedInvestment_{ijt} = 100 \times \left(\frac{\sum_{m \in j} \sum_{n \in i \cap n \in U_t} investment_{mnt}}{\sum_{m \in j} \sum_{n \in i} investment_{mnt}} \right) \quad (1)$$

To estimate the effect of the MMoU signing, we employ the following regression model using OLS:

$$PercentUSXlistedInvestment_{ijt} = \alpha_1 PostMMoU_{it} + \alpha_2 PercentUSXlistedMarketcap_{it} + \beta_{ij} + \gamma_{jt} + \varepsilon_{ijt} \quad (2)$$

The dependent variable, $PercentUSXlistedInvestment_{ijt}$, is aggregated to the fund-country, firm-country pair in each quarter, effectively creating a measure of the country-specific investment for a value-weighted fund of funds from a given investor country. For countries with fewer funds, this estimate will be noisier, so to account for this heterogeneity in reliability, we weight observations by the number of funds in a given country in our regression estimation.

Our primary variable of interest, $PostMMoU_{it}$, is an indicator that equals one if country i signed the MMoU before quarter t , zero if country i had not applied to sign the MMoU before quarter t , and missing if quarter t is between country i 's application to sign the MMoU and the date of signing.¹⁴ We expect a positive coefficient on $PostMMoU_{it}$, which indicates that foreign institutions tilted their ownership toward treated (US-cross-listed) firms relative to control firms in the same country following the MMoU signing.

$PercentUSXlistedMarketcap_{it}$ is the aggregate market capitalization of all US-cross-listed

¹³ For instance, our measure captures the total holdings of French mutual funds in German companies with U.S. ADRs as a proportion of the total investment of French mutual funds in all German companies in a given quarter.

¹⁴ We exclude the period between a country's application date and its signing date (two years on average) because it represents a transition period when the laws to facilitate information sharing may be in place, but when the administrative approvals are not yet complete, it is unclear how investors will respond. Results are robust to inclusion of that period.

firms in country i in quarter t , divided by the aggregate market capitalization of all firms in country i in quarter t . This variable controls for changes in the dependent variable that arise because of shifts in the market capitalization of available US cross-listed shares relative to the total investable shares in a country (e.g., because of new US cross-listings or because of changes in the market value of existing US cross-listings). β_{ij} is a time-invariant fixed effect for each fund-country/firm-country pair, included to control for any static factors that affect the level of investment between country pairs (e.g., common currency). γ_{jt} is a time-varying fixed effect for each fund country controlling for time-varying preferences of funds from a particular country for cross-listed stocks (in general). To account for correlation in the level of ownership over time, we cluster standard errors by firm country and fund country.

3.4 *Sample data*

Our ownership data are from *FactSet*, which provides disaggregated security-level holdings at the fund level for mutual funds from a wide range of countries. In each fund report, *FactSet* provides details on the fund's investment portfolio. We use these data to construct fund-firm equity holdings by calendar quarter and aggregate these holdings as needed for each analysis. We exclude funds classified as index or closed-end because these managers' discretionary investment choices are constrained. For an investee country to be included in the sample we require at least 10 cross-listed firms from that country, leading to a final sample of funds from 65 investor countries in firms from 28 investee countries.

Table 1 Panel A reports the largest 30 of the 65 investor countries (the remaining 35 countries represent 1,232 funds). About 22.8% of the funds are headquartered in the US with the remainder spread fairly evenly across a range of countries. All 28 investee countries included in the sample are reported in Table 1 Panel B, which reports the total amount of foreign investment

in each country and the amount of investment in cross-listed firms from that country.¹⁵ Among the investee countries, the UK attracts the most fund investment, but investment is spread across a wide range of countries. We designate any firm domiciled outside the US but with shares traded in the US as “cross-listed.” The fraction of investment in cross-listed firms in a given target country as a percentage of all investment in that country is typically in excess of 50%, which (although not controlling for other factors such as firm size) is consistent with prior research indicating institutional investors’ preference for US-cross-listed firms (Ferreira and Matos 2008). Overall, the sample comprises about \$2.4 trillion of total investment.

Table 1 Panel B also reports the date that a country signs the MMoU, committing to cooperation with the SEC and other regulators. As is evident in the table, the MMoU signature dates are spread over time with no clear divisions between emerging and developed markets. Rather, the variation in adoption timing is likely attributable to differences across countries in their existing laws, which dictate the legislative process and scope of enacting new laws necessary to join the MMoU and the development of the required infrastructure to facilitate information sharing. The staggered adoption helps with identification by allowing us to control for shocks to preferences for US cross-listed stocks that are common across countries/investors in any given quarter so that we can identify the incremental effect of the MMoU.

In Table 2, we report descriptive statistics and correlations for our sample.¹⁶ The sample is fairly well-balanced across the pre- and post-MMoU periods, with 68% of the observations in the post-MMoU period. The cross-sectional variables presented are on a country level (either firm country, fund country, or firm country-fund country pair); in some analyses the investment

¹⁵ The US is excluded as an investee country because, by definition, US cross-listed firms cannot be domiciled in the US.

¹⁶ *HighDistrust* is based on a Eurobarometer survey of residents of Western European countries. None of the surveyed countries was a former communist nation, so the pairwise correlation between these two variables is undefined.

aggregations are based on partitioning variables such as fund turnover, which are not included in Panels A and B.

4. The Effect of the MMoU on Foreign Portfolio Investment

4.1 The Overall Effect of the MMoU on Investment in US-Cross-Listed Firms

Our initial tests of the effect of the MMoU on overall institutional investment are presented in Table 3. The coefficient of interest, *PostMMoU*, captures the change in holdings of US-cross-listed stocks (relative to non-cross-listed stocks) for fund country *j* following the MMoU. Consistent with SEC oversight increasing investor demand for US cross-listed stocks, the positive coefficient estimate for *PostMMoU* reported in Column (1) indicates that investors' tilt their portfolios, in terms of the relative dollar value of their investment, toward US-cross-listed firms after the investee country signs the MMoU. Given that the dependent variable captures the investment of funds from a given country in US-cross-listed firms relative to their overall investment in the investee country, the coefficient estimate indicates that, on average, fund managers' increased their holdings of US-cross-listed firms by about 5.4 percentage points relative to their total holdings following the signing of the MMoU. The mean of the dependent variable is about 65.3 percentage points—showing that 65 cents of each dollar of cross-border investment is allocated to US-cross-listed firms. The 5.4 percentage point increase equates to a tilt toward US-cross-listed firms of almost 10 percent compared to the pre-MMoU period. Relative to the aggregate investment of \$2.2 trillion, the coefficient implies an aggregate shift of about \$121 billion toward cross-listed firms following the MMoU signings.

One potential concern with this analysis is that it might reflect a response to changes in profitability, capital structure or liquidity for cross-listed stocks following the MMoU. Later, we provide evidence that the increased investment is not concentrated in institutions that are likely to

be most sensitive to trading costs (e.g., results are stronger for dedicated than transitory institutions), suggesting that the results are not driven by liquidity changes. However, to more directly address the possibility that the results reflect changes in factors such as profitability, liquidity and capital structure around the MMoU signing, Column (2) replicates the analysis controlling for the ratios of liquidity, profitability and leverage for the US-cross-listed stocks relative to non-cross-listed stocks. The results remain very similar when controlling for profitability, leverage, and liquidity.

As an alternative specification, we consider whether institutions increased the *number* of US-cross-listed stocks they held following the MMoU signing (i.e., the extensive margin). If, for example, the MMoU increased investor confidence in US-cross-listed stocks, we would expect institutions to open new positions in cross-listed stocks previously not held. This approach also increases confidence that our main results are not sensitive to how we measure the percentage of ownership.¹⁷ Here, our dependent variable is based on the number of US-cross-listed firms in which funds from a given country invest, scaled by the total number of investee-country firms in which funds from that investor country invest. Our time-varying control variable is calculated analogously. Results in Column (3) yield very similar inferences with similar magnitudes to those in Column (1): the number of funds that invest in US-cross-listed firms in the MMoU signing country increases by 6.9 percentage points relative to non-US-cross-listed firms following the signing of the MMoU, suggesting that much of the shift is on the extensive margin. Results (untabulated) are very similar when we control for profitability, leverage and liquidity changes around the MMoU, analogous to the approach in Column (2). In particular, the *PostMMoU*

¹⁷ For example, our primary dependent variable could vary based on share price movements in portfolio stocks. While that should be controlled by inclusion of *PercentUSXlistedMarketcap_{ijt}* in the regression, estimating the relation based on the number of US-cross-listed stocks held ensures that results are not sensitive to this design choice.

coefficient is 6.9 and is statistically significant when including a control for zero-return days, leverage and liquidity.

Overall, our evidence in this section suggests that the signing of the MMoU significantly increases both the number of positions held and total investment in cross-listed firms relative to non-cross-listed firms. Based on revealed preferences by institutional investors, it appears that the MMoU signing increased the relative attractiveness of cross-listed shares in MMoU countries, resulting in substantial shifts in investment.

4.2 *Assessing Identification Assumptions*

An assumption underlying our difference-in-differences analysis is that the effect we document does not reflect a prior trend in favor of US cross-listing for the MMoU countries relative to the control countries. The fact that MMoU adoption dates are staggered and that we include *Time × Fund Country* fixed effects should control for general trends by foreign investors toward US-cross-listed stocks that are common to all firm countries (regardless of whether they are MMoU signatories) over time. However, it is still possible that for the MMoU countries, there were pre-existing trends that were not shared by the control countries. To assess that possibility, we replace the single *PostMMoU* indicator in Equation (2) with separate interactions between the MMoU-signature-country indicator and indicators for each six months in event time relative to the MMoU application dates. We exclude the indicator for the six-month period prior to the MMoU application ($t-1$), making this the benchmark period.

Figure 1 plots the coefficient estimates and confidence intervals from Equation (2) over time using the event-time dates. If the tilt we observe reflects a more general trend in preferences for US-cross-listed stocks, we should observe statistically significant α coefficients prior to the MMoU adoption date. As illustrated in Figure 1, none of the α coefficients is statistically

distinguishable during the pre-MMoU period and there is no evidence of a trend over time.¹⁸ While we cannot formally test the parallel trends assumption, Figure 1 provides no evidence of a violation. Rather, the first significant tilt toward cross-listed stocks is contemporaneous with the MMoU signing. In the post-MMoU period, the α coefficient on $PostMMoU_{it}$ becomes statistically positive, suggesting that there was a significant shift in preferences toward US-cross-listed firms after the MMoU signing. We next turn to cross-sectional analyses to further understand the determinants of the investment changes.

4.3 *Variation in the Effect of the MMoU based on Oversight Needs of the Investor*

We begin our cross-sectional analyses by considering whether the strength of the MMoU effect varies based on the informational and oversight needs of investors. In particular, we expect that investors at a greater informational disadvantage (absent enhanced oversight) and those whose investment strategy is more reliant on transparency and good governance are most likely to benefit from the MMoU.

4.3.1 *Informational Asymmetry Between Foreign vs. Local Investors*

The level of informational asymmetry likely differs among investors depending on whether they are foreign or local. The home bias literature suggests that foreign investors are generally at an informational disadvantage relative to local investors (e.g., Choe et al. 2005). Given that local investors have advantages in terms of familiarity with domestic firms, access to information, and proximity to monitor local firms, greater SEC oversight should be less important. If foreign investors value the oversight associated with the MMoU more than local investors, we expect the ownership effect to be more pronounced for foreign institutions. In the extreme, local investors might even reduce their holdings in US-cross-listed stocks following the MMoU signing because

¹⁸ The absence of a trend also reduces the concern that the MMoU signing was in response to increased interest in US-cross-listed shares by foreign investors prior to the MMoU (i.e., reverse causality).

the decline in their relative information advantage creates a preference for non-cross-listed shares with relatively less oversight. If foreign investors' value increased oversight more than local investors, the relative increase in demand for shares by foreign investors will induce selling by local investors who place relatively less value on the oversight.¹⁹ As a result, we predict a positive response to the MMoU for foreign institutions and a smaller (and potentially negative) response for local institutions.

To examine this question, we partition our sample based on whether the investor is domiciled in the same country (i.e., a local investor) or a different country (i.e., a foreign investor) as the investee firm. Table 4 reports the results. In Column (1), the estimate for the effect of the MMoU on local investors is negative (-2.7%) but not statistically significant, providing no evidence that domestic funds tilted their portfolios toward US cross-listed firms following the signing of the MMoU. In Column (2), the positive and significant coefficient estimate (5.6%) indicates that foreign investors tilted their portfolios more toward US cross-listed stocks following the MMoU. The economic magnitude of the difference in portfolio tilts of the local and foreign investors is large (8.3%) and statistically significant, suggesting that local institutional investors appear to value the increase in MMoU oversight less. The lack of a positive effect for local investors also provides further assurance that our results do not reflect a more general increase in the preference of institutional investors for US-cross-listed stocks.

4.3.2 Variation in the Effect of the MMoU between US and non-US Foreign Institutions

While foreign institutions, in general, stand to benefit from the enhanced regulatory oversight associated with the MMoU (and the SEC's primary mandate is with respect to US investors), there are reasons to expect that the benefits may actually be larger for non-US investors.

¹⁹ Given a fixed number of shares, if foreign institutions as a group are buying, others must be selling. The sellers could be local institutions, individual investors, or foreign institutions that are not included in FactSet.

First, prior literature suggests that US institutional investors have informational advantages relative to other foreign institutions because their substantial research capacity and location permit them to exploit a richer set of global private information (e.g., Albuquerque et al. 2009; Ferreira et al. 2017). In addition, by virtue of their location, resources, and scale, US institutions are likely better able to assert their private legal right of action and governance preferences, even absent the MMoU (Fang et al. 2015). Because US institutions are more likely to hold cross-listed shares in the US, they will have stronger legal protection even absent the MMoU. To the extent that the primary benefit of the MMoU accrues to non-US investors, it suggests a significant regulatory spillover effect of SEC oversight to non-US investors.

To examine the spillover effect of SEC oversight to non-US investors, we split our sample between non-US and US investors. Columns (1) and (2) of Table 5 report results for US-foreign and non-US-foreign investors, respectively. In Column (1), the estimate for the incremental effect of the MMoU on US-foreign investors is positive (2.4%) but statistically insignificant. In Column (2), the positive and significant coefficient estimate of 6.8% suggests that the MMoU effect was stronger for non-US foreign investors. The difference in the magnitude of the MMoU effect between non-US-foreign versus US-foreign investors (4.4%) is statistically and economically significant. These results are consistent with a spillover effect of regulation, with non-US investors placing the greatest value on the increased US oversight and cross-border regulation associated with the MMoU signing.

4.3.2.1 Effect of Morrison on non-US Foreign Institutions

The preceding results provide evidence that the effect of the MMoU was larger for non-US institutions. To provide more direct evidence, we exploit a shock to legal standing associated with the Supreme Court ruling in the *Morrison v. National Australia Bank* case (Morrison) in the

second quarter of 2010, which clarified that US legal protections do not apply to investors trading foreign stocks on foreign exchanges. The most significant effect of Morrison was to limit the ability of non-US investors to pursue securities litigation in US courts for transactions on non-US exchanges (even for cross-listed firms). As a result, following Morrison, we expect the additional oversight associated with the MMoU to be even more important for non-US investors given their loss of private legal standing in US courts—effectively a substitution between public and private enforcement.

To examine the effects of Morrison, we re-estimate the regression from Table 5, Column (2) for non-US institutions and include an interaction between the *PostMMoU* indicator and a *PostMorrison* indicator that takes a value of one after the second quarter of 2010. If the importance of SEC oversight with the MMoU increased after Morrison, we expect a significant positive coefficient on the interaction. Results reported in Table 5, Column (3) are consistent with this prediction. In particular, the coefficient on the post-Morrison MMoU variable is positive and statistically significant, suggesting that after Morrison limited foreign investors' rights to private litigation, the oversight associated with the MMoU became more important.

Taken together, the results in Table 5 suggest that the primary beneficiaries of the MMoU (at least in terms of ownership preferences and trading behavior) are non-US foreign investors. Together with the evidence on the importance of SEC involvement, the fact that non-US foreign investors appear to be primary beneficiaries suggests a spillover of increased SEC oversight to non-US foreign investors. Furthermore, these results suggest that an increase in public enforcement, such as the signing of the MMoU, serves as a substitute for the private right to legal redress; when the private right to litigation was reduced for foreign investors following Morrison, public enforcement became more important. While the trade-off between public enforcement and

private litigation is likely to be important in a wide range of settings, ours is (to our knowledge) the first empirical evidence of such a relationship in the context of the securities markets.

4.3.3 *Information Asymmetry between the Fund and Firm Country*

The results in the previous section indicate that the adoption of the MMoU had a particularly pronounced effect for non-US foreign investors, who are more likely to be at an informational disadvantage relative to local investors. The extent of this informational disadvantage likely differs by specific investor-investee country pair. We proxy for the extent of the information asymmetry and the costs of monitoring for non-US foreign investors based on whether the investor-investee country pair (1) is not geographically contiguous, (2) does not share a common language, (3) has no preexisting colonial relationship, and (4) is characterized by a high level of distrust—measures of information asymmetry commonly used in the prior literature.²⁰ For example, sharing the same language or legal origin makes it easier to monitor a firm because the direct cost of accessing and processing information is likely lower and the familiarity with the legal system is likely higher. Similarly, countries with the same language and legal origin are more likely to share cultural norms and expectations. Investors from countries that are separated by a lack of trust, as measured by the Eurobarometer trust indices for pairs of countries (Guiso, et al. 2009), are likely to place additional importance on the external oversight provided by the MMoU.

Results reported in Table 6 support the prediction that the effect of the MMoU is largest for investor countries where information asymmetries are likely to be largest. In particular, the difference in coefficient estimates for *Contiguous*, reported across Columns (1) and (2), is 8.15 and statistically significant, suggesting that the effect of the MMoU is more pronounced when the

²⁰ For instance, Carlin et al. (2009), models the relation between regulation and trust in financial markets and shows that the two tend to be substitutes. Consistent with this, Pinotti (2008) and Aghion et al. (2010) find that individuals prefer state control when trust is low.

investor and target countries are geographically separated. Similarly, the difference in coefficients for *Common Language*, reported in Columns (3) and (4), is 6.97 and statistically significant, indicating that for countries that do not share a common language, the response to the MMoU is larger. The difference in coefficients for a historic *Colonial Relationship*, reported in Columns (5) and (6), is 5.24 and statistically significant, indicating that the effect of the MMoU is smaller if a fund-firm pair has a colonial relationship. Finally, the difference in coefficients for *High Distrust* is 12.3 and statistically significant, suggesting that the oversight associated with the MMoU is substantially larger when there is a high level of distrust between the investor and target country.

4.3.4 *Fund Strategy*

The preceding analysis suggests that the effect of the MMoU differs based on the inherent informational asymmetry between the investor fund and the target company. In addition, there is likely variation in the importance of oversight and, hence, the response to the MMoU, based on fund strategies. While we exclude index funds in all of our analyses because they have little discretion in portfolio allocation, there is still likely variation in strategy for non-index funds. Following papers such as Bushee (1998, 2001) and Borochin and Yang (2017), we split investors into two groups based on trading behavior: (1) transient investors and (2) dedicated investors. In general, transient investors tend to trade frequently and hold a large number of smaller positions, while dedicated investors trade less frequently and hold a smaller number of larger positions.

Borochin and Yang (2017) provide evidence that dedicated institutions tend to place a higher value on transparency and oversight because they invest based on firm-specific fundamental information with a focus on holding the stock for long-term growth, while transient institutions are more likely to be technical investors who trade based on short-term price movements and arbitrage. As a result, we expect dedicated institutions to respond more to the MMoU both because

they tend to be fundamentals-based investors who depend on reliable public information, and because they hold for long-term returns and value strong governance facilitated by better oversight.

We split funds into transient (*Low Turnover Funds*) and dedicated (*High Turnover Funds*) based on the turnover classifications in FactSet and separately estimate Eq. (2) for each fund type.²¹ The results in Table 7 provide support for the prediction that the MMoU has a greater impact on dedicated investors than it does on transient investors. The dedicated investors demonstrate a significant shift towards US cross-listed firms after the MMoU signing, whereas the shift for transient investors is insignificant. Additionally, the difference in effect magnitude (3.9 percentage points) is statistically significant, consistent with dedicated investors benefitting most from the increased transparency and improved governance associated with the MMoU.

4.4 *Effect of SEC Involvement in the MMoU*

We next turn to examining the role of the US in the MMoU. Though over one hundred countries eventually signed, the US was one of the first signatories, is generally held to be a particularly aggressive regulator, and has been active in filing requests for regulatory cooperation. As a result, we expect the presence of the SEC to have a large influence on the MMoU effect. Accordingly, we examine whether the MMoU's asset reallocation effect is larger based on: (1) the cross-listed security's listing status with the SEC, (2) the *investee* country's pre-MMoU regulatory links to the US, and (3) the *investor* country's likely level of alignment with US institutions and policies.

4.4.1 *Firm Listing Status*

²¹ Transitory funds are those with "high" or "very high" turnover while dedicated funds are those with "medium," "low," or "very low" turnover. The number of observations in this analysis is less than double that in the prior analyses because each fund country does not always have both transitory and dedicated funds.

To this point, we have focused on all US cross-listings without reference to their registration status with the SEC. In practice, however, the extent of SEC oversight is likely a function of whether the cross-listed stock is sponsored by the underlying firm and, therefore, is registered with the SEC. The incremental effect of the MMoU is likely to be largest for registrants because the SEC's jurisdiction is clearest for those types of securities. To test this, we split our sample into two subsamples: (1) ADRs that are sponsored by the underlying firms and trade on an exchange or on the OTC, and (2) unsponsored ADR shares in the OTC markets. In the latter case, the ADR is typically originated by a US bank without involvement from the underlying firm and the SEC's oversight mandate is limited. We expect more SEC involvement for sponsored ADRs and, thus, a more pronounced oversight effect associated with the MMoU.²²

Results in Table 8 are consistent with that prediction. Registrant ADR firms experience significant increases in foreign ownership following the MMoU signing, while non-registrant ADR firms do not. These results suggest that the level of involvement of the SEC relative to the cross-listed firm is important to foreign investors when shifting their portfolio allocation in response to the MMoU.²³

4.4.2 Preexisting Ties between the US and the MMoU-Adopting Country

The incremental SEC oversight associated with the MMoU is also likely to vary based on the investee country's pre-MMoU ties to the US in general and the SEC in particular. We predict that the change in ownership will be smaller for signatory countries that had strong economic ties

²² For ease of exposition, we refer to sponsored ADRs and direct dual listings as "registrants" and unsponsored ADRs as "non-registrants."

²³ An alternate approach to assess SEC oversight would be to compare the MMoU effects of firms cross-listed in the US with those cross-listed on other markets. In practice, the extent of foreign institutional holdings in non-US cross-listed stocks tends to be very low. While we find that the MMoU effect is insignificant for stocks cross-listed on other markets, the tests are too weak to provide reliable inference.

to the US prior to the MMoU and for which the SEC already has a formal right to support from home regulators.

To test this prediction, we first estimate our regression model on two subsamples: observations where the firm country had SEC activity prior to the MMoU, and those where there was no SEC activity. We define SEC activity as the firm country having a bilateral relationship with the investee country and pursuing an enforcement action against a firm in that country prior to the MMoU signing. We predict that the incremental effect of the MMoU signing will be smaller for countries with strong SEC regulatory ties to the US prior to the MMoU.²⁴ We construct a second, more general, measure of the investee country's connection to the US, *USTradeImportance_i*, based on the intensity of trading between the two countries to capture general preexisting economic and regulatory links (e.g., tax and trade policy and financial and security cooperation). For each country, *i*, we take exports to each other country and scale by the export destination's GDP to control for the size of the overall economy. We then percentile rank export destinations for each country *i* by the scaled exports with the most important partner ranked 99. Our measure of US trade importance for each country *i* is the percentile rank of the US as an export destination for country *i*.²⁵ We re-center this ranking so the mean observation (rank 65) equals 0 for interpretability.

Results reported in Table 9 provide evidence that, as predicted, the effect of the MMoU on foreign investment is substantially larger for countries with weaker pre-existing SEC oversight and economic links to the US. In terms of SEC oversight, results in Columns (1) and (2) indicate

²⁴ While the effectiveness of prior bilateral arrangements is unclear from a large-sample empirical perspective, there are anecdotal examples of these arrangements helping to facilitate investigations and enforcement cases (Silvers 2017a). It is ultimately an empirical question whether the MMoU is a complement or substitute for these other bilateral arrangements.

²⁵ Results are almost identical using a similar measure based on imports rather than exports (untabulated).

that the effect of the MMoU resulted in no significant ownership shift toward US-cross-listed firms for countries with pre-existing SEC enforcement links relative to 10.8 percentage points for countries with no pre-existing links (column (2)). This difference is statistically significant. Similarly, results in Column (3) indicate that the MMoU effect is substantially larger for signatories with weaker pre-existing economic ties to the US. For a 25% increase in the percentile ranking of trade importance, there is a 2.7 percentage point decrease in the magnitude of the investment shift associated with the MMoU.

Overall, these results provide evidence consistent with the prediction that the effect of the MMoU signing was stronger in cases in which pre-existing US oversight and economic ties were weaker, suggesting that the gains from the MMoU were most pronounced for countries that were historically most distant from the US regulatory apparatus. This result further supports the conclusion that our primary results reflect the effect of SEC oversight, and suggests substantial country-level variability in investors' perceived benefits of the MMoU with smaller effects for established US regulatory partners.

4.4.3 *Alignment between the Investor Country and the US*

The preceding analysis suggests that the pairing between the SEC and the *investee* country has implications for the importance of MMoU oversight. It is also possible that the relationship between the *investor* country and the US has significant implications for the impact of the MMoU. In particular, we have presumed that the level of confidence in and awareness of SEC oversight is uniform across institutional investors. In practice, however, reliance on US oversight likely varies by investor.²⁶

²⁶ Willingness to rely on SEC oversight may be partially a function of perception (e.g., how aware and confident investors are with respect to the MMoU and likely SEC oversight) and partially a function of likely impact (e.g., investors' perceptions of how likely the SEC is to prioritize their interests given the closeness of their country's ties to the US).

Our prediction is that for investor countries with closer alignment to the US, signing the MMoU will have a larger impact (i.e., a greater investment tilt towards US cross-listed firms). We use two measures of alignment with the US: 1) similarity between the investor country and the US in UN General Assembly votes and 2) an indicator if the fund country has ever had a communist regime. Both measures are intended to capture the extent of policy and political alignment (or lack thereof) between the US and the investor country. We assume that countries with a high degree of alignment with the US on UN votes have similar political structures and are likely to be more closely linked and better coordinated with US government institutions such as the SEC. Given the historical animosity and lack of alignment between communist countries and the US, we expect funds from current or former communist countries to place less reliance on SEC oversight.

We measure similarity in UN voting using percentile ranks based on the number of congruent votes between the fund country and the US from 1996 to 2000, with higher values indicating greater similarity. For ease of interpretation, we re-center the median of the percentile ranks to 0. Results reported in Table 10, Column (1) indicate a strong positive and significant coefficient on the interaction between UN voting and MMoU signing, consistent with increased alignment with the US resulting in a stronger MMoU effect. In terms of magnitude, funds from the country with the most similar voting record increased their portfolio tilt toward US cross-listed firms by about 9.6 percentage points following the MMoU signing, while funds in countries that rank at the 50th percentile increased their holdings by about 5.7 percentage points.

Results reported in Table 10, Columns (2) and (3) indicate that the effect of the MMoU was significantly weaker for former communist countries, potentially because they are less aware of and place less confidence in SEC oversight. Coupled with the results from the previous two sections, the evidence here suggests that the strength of the response to the MMoU signing is a

function of: the level of SEC oversight based on registrant status, pre-existing ties to the US by the investee country, and the investor country's political alignment with the US. Overall, the results highlight the importance of SEC oversight to the effectiveness of the MMoU.

4.5 *Spillover Effects to Non-US Exchanges*

The preceding analyses suggest that the effect of the MMoU is most pronounced for investors facing high information asymmetry in situations with previously limited access to SEC oversight and enforcement. The fact that investors trading US cross-listed securities on US exchanges have preexisting legal advantages relative to those trading in the same firms on non-US exchanges suggests the possibility that the incremental benefits of the MMoU could be larger for investors trading on non-US exchanges. That is, it is possible that the benefits of SEC oversight have significant spillover effects to non-US exchanges because the additional oversight is at the firm level (irrespective of the exchange on which the stock is traded) and is non-excludable. In fact, to the extent that investors trading on US exchanges are better protected by the right to private action through the US courts absent the MMoU, the primary beneficiaries of SEC oversight associated with the MMoU may be non-US exchanges. To examine that possibility, we consider the incidence of the benefits to non-US exchanges based on the extent to which the increased foreign institutional holdings associated with the MMoU occurs on the domestic, relative to the US, exchange.

Prior research (e.g., Halling et al. 2007) suggests that regulatory enforcement is an important determinant of the trading venue for cross-listed firms. For foreign investors, trading cross-listed shares on US exchanges has the potential advantage of stronger legal standing, but often carries substantial disadvantages related to currency risk, illiquidity, and trading fees. With the MMoU in place, however, the ability to pursue private litigation likely became less important

as a disciplining mechanism given the expanded firm-level SEC public oversight that applies irrespective of the trading venue.

An advantage of the FactSet data is that we are able to observe whether the institution increased their position in the ADR traded in New York or in the underlying security traded in the home market. To the extent that the additional oversight associated with the MMoU reduced the relative advantage of purchasing shares on the US markets, we predict a significant increase in holdings on the foreign market. We examine this question by calculating for each fund-firm-quarter the percent of investment in US-cross-listed firms that occurs on a US exchange, out of total investment in the firm country. We similarly calculate a ratio for the same US-cross-listed firms listed, but based on the percent of investment that occurs in the home (non-US) market. We regress each of these ratios on our post-MMoU indicator and a control ratio of the market capitalization of US exchange-listed firms from country i divided by the market capitalization of all firms from country i . Results reported in Table 11 are consistent with the prediction that the increased investment occurs primarily in the home market. In particular, Column (1) indicates that foreign ownership in US-cross-listed firms increased by a statistically significant 3.9 percentage points in the foreign market following adoption of the MMoU. On the other hand, column (2) indicates no significant change in the US market, and the difference in coefficients across the columns is significant.

These findings are of interest for at least two reasons. First, because the results are strongest for investments in the primitive security and not on the US exchange, they suggest that the MMoU effect reflects firm-level regulatory bonding (and not some other aspect of trading on US exchanges). Second, these results suggest a significant spillover from US regulatory oversight that benefits exchanges in the signatory country. They are consistent with the preceding results in

suggesting that primary beneficiaries of *US* involvement in the MMoU appear to have been *non-US* investors trading on *non-US* exchanges.

5. Conclusions

Despite the fact that multinational regulatory cooperation is becoming more prevalent, there is little existing empirical evidence examining the effect of changes in regulatory oversight on international investor clienteles or on regulatory spillovers across countries and investors. We use a country's signing of the MMoU as a shock to the extent of US regulatory oversight, coupled with detailed data on portfolio holdings by institutional investors from a wide range of countries, to provide evidence on the effects of cross-border regulatory cooperation on a global institution's portfolio choice.

Focusing on firms cross-listed on US markets, our primary findings are as follows:

1. Institutional investment increased following the MMoU signing.
2. In terms of *investor type*, the effect was strongest for:
 - a. foreign (as opposed to domestic) investors,
 - b. non-US investors among the foreign investors, especially after the Morrison Supreme Court decision which confirmed that trading of foreign securities on foreign exchanges is not covered by US securities laws, and
 - c. dedicated (as opposed to transient) investors.
3. In terms of *signatory countries*, the effect was strongest for countries that had limited regulatory and economic ties to the US prior to the MMoU.
4. In terms of *firms*, the effect was strongest for firms with greater SEC oversight (i.e., firms with sponsored ADRs).

5. In terms of *investor country*, the effect was strongest for countries that had traditional links to the US (similar voting in the UN and a noncommunist tradition).
6. In terms of *investor/investee country pairs*, the effect was strongest for pairs where the level of information asymmetry between the investor relative to the investee was greatest, based on geographic distance, language, legal origin and distrust.
7. Following the MMoU signing, ownership in cross-listed shares increased substantially in non-US markets.

While our results are, to some extent, descriptive, we believe they speak to an important gap in the literature and are likely to be of interest to a range of constituents. First, given that the SEC expends significant effort coordinating with foreign regulators, it is important to understand what types of investors are primary beneficiaries. For example, because the SEC is a US regulator, it is interesting to note that the benefits associated with the MMoU appear to be primarily for *non-US* investors trading on *non-US* exchanges. Second, the results are likely to be of interest to signatory countries in weighing the costs and benefits associated with the MMoU, and when assessing whether or not to join the upcoming Enhanced MMoU (EMMoU). Third, the findings provide insight to stakeholders more generally about the effectiveness of cooperative regulatory agreements in general and the MMoU in particular.

Of course, our conclusions are subject to important caveats. In particular, we can only draw inference from the MMoUs as implemented and much of our evidence on investor, investee and country characteristics is cross-sectional in nature, limiting our ability to draw strong causal conclusions. That being said, we report a broad set of results that provide insights into regulatory spillovers in global markets.

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Figure 1: Parallel Trends Event Time Analysis

This figure plots the estimated α coefficients and associated 90% confidence intervals from the model:

$$y_{ijt} = \alpha_1 \text{BeyondFiveYrBeforeMMoU}_{it} + \alpha_2 \text{FiveYrBeforeMMoU}_{it} + \alpha_3 \text{FourYrBeforeMMoU}_{it} + \alpha_4 \text{ThreeYrBeforeMMoU}_{it} + \alpha_5 \text{TwoYrBeforeMMoU}_{it} + \alpha_6 \text{PostMMoU} + \beta \text{PercentUSXlistedMarketcap}_{it} + \gamma_{ij} + \delta_{jt} + \varepsilon_{ijt}$$

where i indexes firm country, j indexes fund country, and t indexes time (quarter and year). γ_{ij} is a time-invariant fixed effect for each fund country-firm country pair, and δ_{jt} is a time-varying fixed effect for each fund country. The dependent variable is calculated for each quarter t , as $100 \times$ aggregate investment by funds from country j in firms from country i that crosslist in the US divided by aggregate investment by funds from country j in firms from country i . $\text{BeyondFiveYrBeforeMMoU}_{it} = 1$ if country i applied to be a signatory to the MMoU over 5 years after quarter t , 0 otherwise; $X\text{YrBeforeMMoU}_{it} = 1$ if country i applies to be a signatory to the MMoU in the year X years after quarter t , 0 otherwise. $\text{PostMMoU}_{it} = 1$ if country i signed the MMoU before quarter t , 0 if country i had not applied to sign the MMoU before quarter t , and missing if quarter t is between country i 's application to sign the MMoU and the date of signing. The reference period is when t is in the year before country i 's application to be a signatory to the MMoU. $\text{PercentUSXlistedMarketcap}_{it}$ is $100 \times$ the marketcap of firms from country i in quarter t that crosslist in the US divided by the marketcap of firms from country i . Observations are weighted by the number of funds in country j . Standard errors are clustered by firm country and by fund country.

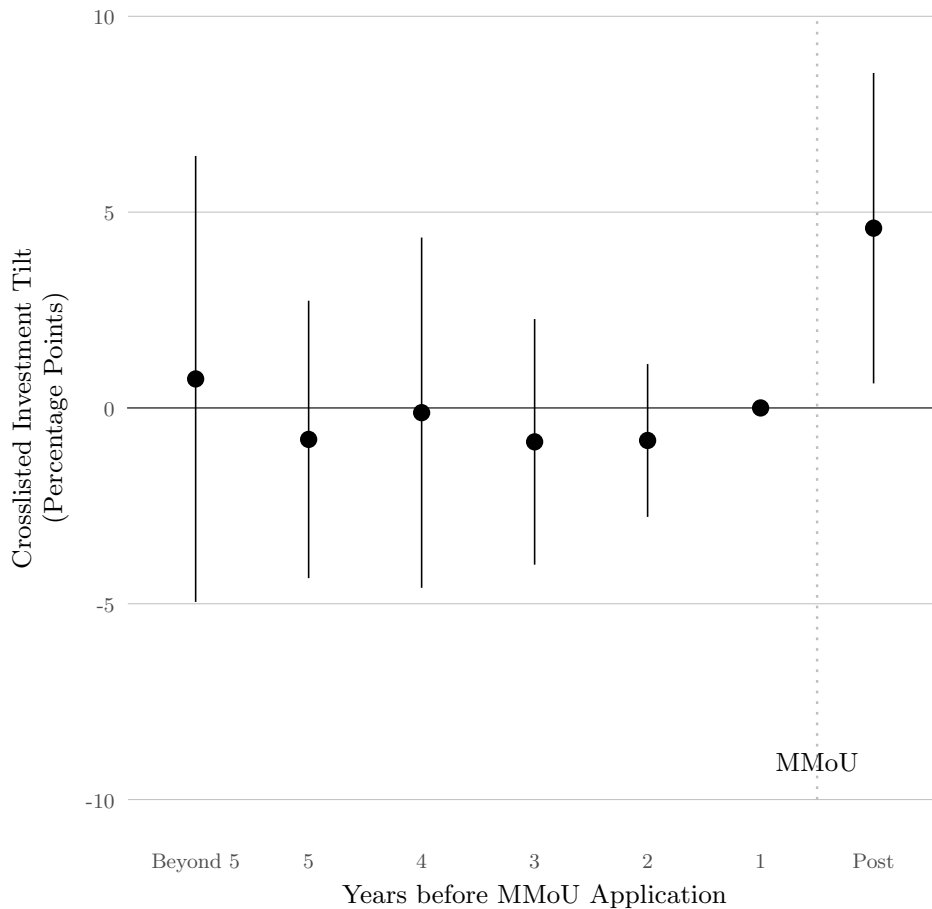


Table 1: Sample Composition

Panel A presents the number of funds in the sample per fund country. We include in the sample holdings over a 14 year window (from the 3rd quarter of 2001 through the 2nd quarter of 2015). The top 30 fund countries, measured by fund counts, are tabulated. The entire sample contains 46,372 funds across 65 fund countries (smaller fund countries are included in the sample but not tabulated for brevity). Panel B shows the dollars invested in stocks in a firm country by sample funds, averaged by reporting quarter. For an investee country to be included in the sample, the country must have at least 10 firms cross-listed in the US (in which funds are investing) in each quarter.

Panel A: Fund Countries

Country	Funds	Country	Funds
United States	10,612	South Africa	707
Spain	5947	Belgium	597
France	4145	Denmark	570
United Kingdom	3405	Netherlands	499
Canada	3320	China	474
Japan	2135	Finland	465
Germany	1959	Taiwan	457
Austria	1106	Liechtenstein	440
India	1099	Norway	390
Italy	1051	Chile	299
Switzerland	953	Poland	280
Israel	878	Malaysia	271
Brazil	874	Luxembourg	270
Sweden	743	Thailand	250
Australia	715	Portugal	229

Panel B: Investee Firm Countries

Country	Investment (\$ Bil)		MMoU Signed	Country	Investment (\$ Bil)		MMoU Signed
	Cross-listed	All			Cross-listed	All	
United Kingdom	313.4	417.2	10 Mar 2003	Italy	21.7	43.5	15 Sep 2003
Canada	173.9	260.1	23 Oct 2002	Ireland	38.6	42.4	24 Dec 2012
Japan	118.7	210.8	19 Feb 2008	Brazil	30.8	41.8	21 Oct 2009
France	141.3	195.2	19 Feb 2003	Taiwan	15.0	38.5	15 Mar 2011
Switzerland	110.5	144.7	15 Feb 2010	South Africa	22.0	32.4	18 Mar 2003
Germany	101.8	137.2	5 Nov 2003	Mexico	21.3	25.1	14 Mar 2003
Netherlands	85.3	99.3	22 Nov 2007	Singapore	14.8	23.0	17 Nov 2005
China	40.5	95.1	29 May 2007	Bermuda	21.5	22.7	07 Jun 2007
Sweden	39.4	63.5	17 May 2011	Russia	2.6	22.6	16 Feb 2015
Hong Kong	45.9	59.9	3 Mar 2003	Norway	12.8	21.7	11 Dec 2006
India	10.6	57.8	22 Apr 2003	Israel	11.1	12.4	2 Jul 2006
Australia	35.4	56.2	8 Oct 2002	Thailand	4.5	10.9	19 Jun 2008
South Korea	9.5	50.4	9 Jun 2010	Chile	1.8	3.0	-
Spain	32.8	47.0	24 Mar 2003	Argentina	1.1	1.1	12 Jun 2014

Table 2: Descriptive Statistics Panel A presents distributional statistics of the key variables. Panel B shows pairwise correlations among the key variables and the country-level variables used for the cross-sectional analyses.

Panel A: Distributional Statistics—Full Sample of Funds and Firms

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Median	Pctl(75)	Max
PercUSXlistedInvestment	50,534	65.310	29.828	0.000	47.453	71.809	89.907	100.000
PostMMoU	44,893	0.686	0.464	0.000	0.000	1.000	1.000	1.000
PercentUSXlistedMarketcap	50,534	64.242	23.200	8.264	53.423	68.924	82.815	99.935
ZeroReturnDaysRatio	50,534	0.471	0.236	0.003	0.300	0.492	0.640	0.993
NetIncomeRatio	50,534	0.856	1.005	-7.774	0.826	0.962	0.999	43.700
LeverageRatio	50,534	0.796	0.287	0.018	0.699	0.955	0.998	1.000
USTradeImportance	48,732	-0.064	17.049	-31.619	-10.619	1.381	13.381	33.381
USVotingSimilarity	44,257	-0.982	28.620	-49.000	-25.000	0.000	22.000	50.000

Panel B: Correlation Table—Full Sample of Funds and Firms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) PercUSXlistedInvestment															
(2) PostMMoU	0.107														
(3) PercUSXlistedMarketcap	0.628	0.203													
(4) ZeroReturnDaysRatio	0.502	0.016	0.808												
(5) NetIncomeRatio	0.133	0.063	0.178	0.121											
(6) LeverageRatio	0.429	0.203	0.550	0.406	0.222										
(7) USTradeImportance	0.101	-0.055	0.014	0.082	-0.010	0.034									
(8) USVotingSimilarity	0.013	-0.134	-0.004	0.019	0.003	0.001	0.013								
(9) Contiguous	-0.034	-0.012	0.013	-0.004	-0.010	-0.054	-0.138	0.064							
(10) CommonLanguage	-0.012	0.080	0.028	0.021	0.007	0.063	0.134	-0.141	0.161						
(11) ColonialRelationship	-0.013	0.009	0.048	0.033	0.004	0.030	-0.061	0.040	0.127	0.324					
(12) HighDistrust	-0.154	-0.048	-0.249	-0.060	-0.098	-0.042	0.005	-0.166	-0.082	-0.027	0.031				
(13) Communist	0.039	0.116	0.015	0.004	-0.007	-0.019	-0.035	0.017	-0.004	-0.165	-0.041				
(14) SECActive	0.199	0.196	0.338	0.408	0.047	0.194	-0.044	-0.018	0.105	-0.038	0.053	-0.010	0.043		
(15) USFund	0.020	-0.049	-0.002	0.004	0.001	0.003	0.006	0.015	0.015	0.192	0.054	-0.075	-0.008		
(16) LocalFund	-0.066	0.009	0.008	-0.001	0.002	0.011	-0.024	-0.030	-0.037	-0.068	-0.034	-0.218	-0.046	0.011	-0.028

Table 3: Effect of MMoU on Fund Investment

This table estimates regressions in the form of:

$$y_{ijt} = \alpha_1 PostMMoU_{it} + B \cdot Controls_{it} + \gamma_{ij} + \delta_{jt} + \varepsilon_{ijt}$$

where i indexes firm country, j indexes fund country, and t indexes time (quarter and year). γ_{ij} is a time-invariant fixed effect for each fund country-firm country pair, and δ_{jt} is a time-varying fixed effect for each fund country. In columns (1) and (2) the dependent variable is calculated for each quarter t , as $100 \times$ aggregate investment by funds from country j in firms from country i that crosslist in the US divided by aggregate investment by funds from country j in firms from country i . In column (3) the dependent variable is calculated for each quarter t and aggregated for each pair of firm country i and fund country j as $100 \times$ the count of firm-fund investment pairs where the firm crosslists in the US divided by the count of firm-fund investment pairs. $PostMMoU_{it} = 1$ if country i signed the MMoU before quarter t , 0 if country i had not applied to sign the MMoU before quarter t , and missing if quarter t is between country i 's application to sign the MMoU and the date of signing. $PercentUSXlistedMarketcap_{it}$ is $100 \times$ the marketcap of firms from country i in quarter t that crosslist in the US divided by the marketcap of firms from country i . $PercentUSXlistedCount_{it}$ is $100 \times$ the number of firms from country i in quarter t that crosslist in the US divided by the total number of firms from country i . $ZeroReturnDaysRatio_{it}$ is the average zero return days per firm of all crosslisted firms from country i during quarter t , weighted by market cap, divided by the average zero return days of all firms from country i during quarter t , also weighted by market cap. $NetIncomeRatio_{it}$ is the net income divided by total assets from crosslisted firms in country i scaled by net income over total assets from all firms in country i , with both the numerator and denominator weighted by market cap. $LeverageRatio_{it}$ is the debt to asset ratios, weighted by market cap, of crosslisted firms from country i scaled by all firms in country i . Observations are weighted by the number of funds in country j . Standard errors are clustered by firm country and by fund country.

	Investment		Counts
	(1)	(2)	(3)
PostMMoU	5.425** (2.671)	5.533** (2.600)	6.880*** (2.590)
PercentUSXlistedMarketCap	0.902*** (0.084)	0.922*** (0.085)	
PercentUSXlistedCount			0.931*** (0.158)
ZeroReturnDaysRatio		0.003 (3.377)	
NetIncomeRatio		-0.013 (0.090)	
LeverageRatio		-2.368 (3.961)	
<i>Fixed Effects:</i>			
Fund Country \times Investee Country	Yes	Yes	Yes
Fund Country \times Quarter	Yes	Yes	Yes
<i>Standard Error Clusters:</i>			
Fund Country	65	65	65
Firm Country	28	28	28
N	44,893	44,893	44,893
Adjusted R ²	0.767	0.767	0.794

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Spillovers to Foreign Funds

This table estimates regressions in the form of:

$$\text{PercentUSXlistedInvestment}_{ijt} = \alpha_1 \text{PostMMoU}_{it} + \alpha_2 \text{PercentUSXlistedMarketcap}_{it} + \beta_{ij} + \gamma_{jt} + \varepsilon_{ijt}$$

where i indexes firm country, j indexes fund country, and t indexes time (quarter and year). β_{ij} is a time-invariant fixed effect for each fund country-firm country pair, and γ_{jt} is a time-varying fixed effect for each fund country. $\text{PercentUSXlistedInvestment}_{ijt}$ is calculated for each quarter t , as $100 \times$ aggregate investment by funds from country j in firms from country i that crosslist in the US divided by aggregate investment by funds from country j in firms from country i . $\text{PostMMoU}_{it} = 1$ if country i signed the MMoU before quarter t , 0 if country i had not applied to sign the MMoU before quarter t , and missing if quarter t is between country i 's application to sign the MMoU and the date of signing. $\text{PercentUSXlistedMarketcap}_{it}$ is $100 \times$ the marketcap of firms from country i in quarter t that crosslist in the US divided by the marketcap of firms from country i . The sample for column (1) is observations where $i = j$, whereas column (2) is observations where $i \neq j$. Observations are weighted by the number of funds in country j . Standard errors are clustered at the firm country level.

	Investment	
	(1)	(2)
PostMMoU	-2.698 (4.128)	5.580*** (1.333)
PercentUSXlistedMarketCap	0.879*** (0.138)	0.897*** (0.042)
Sample Funds:	Local	Foreign
<i>Fixed Effects:</i>		
Fund Country \times Investee Country	Yes	Yes
Fund Country \times Quarter	Yes	Yes
<i>Standard Error Clusters:</i>		
Fund Country	27	65
N	1,026	43,867
Adjusted R^2	0.897	0.765
Difference in α_1		8.278* (4.318)

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Spillovers to Non-US Funds

This table estimates regressions in the form of:

$$\text{PercentUSXlistedInvestment}_{ijt} = \alpha_1 \text{PostMMoU}_{it} [+ \alpha_2 (\text{PostMorrison}_t \times \text{PostMMoU}_{it})] + \alpha_3 \text{PercentUSXlistedMarketcap}_{it} + \text{Fixed Effects} + \varepsilon_{ijt}$$

where i indexes firm country, j indexes fund country, and t indexes time (quarter and year). $\text{PercentUSXlistedInvestment}_{ijt}$ is calculated for each quarter t , as $100 \times$ aggregate investment by funds from country j in firms from country i that crosslist in the US divided by aggregate investment by funds from country j in firms from country i . $\text{PostMMoU}_{it} = 1$ if country i signed the MMoU before quarter t , 0 if country i had not applied to sign the MMoU before quarter t , and missing if quarter t is between country i 's application to sign the MMoU and the date of signing. $\text{PostMorrison}_t = 1$ if $t >$ the second quarter of 2010, 0 otherwise. $\text{PercentUSXlistedMarketcap}_{it}$ is $100 \times$ the marketcap of firms from country i in quarter t that crosslist in the US divided by the marketcap of firms from country i . The sample for column (1) is observations where $i \neq j$ and $j = \text{US}$; columns (2) and (3) are observations where $i \neq j$ and $j \neq \text{US}$. Observations are weighted by the number of funds in country j . Standard errors are clustered at the firm-country level.

	Investment		
	(1)	(2)	(3)
PostMMoU	2.449 (2.962)	6.815** (2.852)	4.765** (2.326)
PostMMoU \times PostMorrison			11.242** (4.447)
PercentUSXlistedMarketCap	0.790*** (0.080)	0.944*** (0.085)	0.912*** (0.080)
Sample Funds:	US Foreign	Non-US Foreign	Non-US Foreign
<i>Fixed Effects:</i>			
Investee Country	Yes	No	No
Fund Country \times Investee Country	No	Yes	Yes
Quarter	Yes	No	No
Fund Country \times Quarter	No	Yes	Yes
<i>Standard Error Clusters:</i>			
Firm Country	28	28	28
N	1,507	42,360	42,360
Adjusted R^2	0.902	0.726	0.730
Difference in α_1		4.366*** (1.638)	

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Fund-firm Information Asymmetry

This table estimates regressions in the form of:

$$PercentUSXlistedInvestment_{i,t} = \alpha_1 PostMMoU_{it} + \alpha_2 PercentUSXlistedMarketCap_{it} + \beta_{ij} + \gamma_{jt} + \varepsilon_{ijt}$$

where i indexes firm country, j indexes fund country, and t indexes time (quarter and year). β_{ij} is a time-invariant fixed effect for each fund country-firm country pair, and γ_{jt} is a time-varying fixed effect for each fund country. Investment is aggregated to one observation per fund country-firm country pair per quarter. $PostMMoU_{it} = 1$ if country i signed the MMoU before quarter t , 0 if country i had not applied to sign the MMoU before quarter t , and missing if quarter t is between country i 's application to sign the MMoU and the date of signing. Each column's sample includes only foreign investment from non-US funds. Column (1) includes observations when i and j do not share a common border; column (2) includes observations where i and j do. Column (3) includes observations when i and j do not share a language, whereas in column (4) i and j do. Column (5) includes observations where i or a portion of i was not either a colonizer or colony of j or a portion of j ; in column (6) i and j have a colonial relationship. Column (7) includes instances where respondents to the Eurobarometer survey from country j stated they had "no trust" in country i at a rate higher than the mean country pair (8.94%); column (8) includes observations where a lower portion of respondents from j stated they had "no trust" in i . Observations are weighted by the number of funds in country j . Standard errors are clustered by firm country and fund country.

	Contiguous		Common Language		Investment		Colonial Relationship		High Distrust	
	No (1)	Yes (2)	No (3)	Yes (4)	No (5)	Yes (6)	No (7)	Yes (8)	No (7)	Yes (8)
PostMMoU	7.040*** (2.645)	-1.117 (4.875)	8.045*** (2.798)	1.075 (2.298)	6.871** (2.680)	1.633 (2.688)	14.744*** (2.829)	2.428 (2.696)		
PercentUSXlistedMarketCap	0.957*** (0.079)	0.928*** (0.201)	0.947*** (0.080)	0.985*** (0.105)	0.949*** (0.084)	0.824*** (0.167)	1.002*** (0.146)	0.773*** (0.148)		
<i>Fixed Effects:</i>										
Fund Country × Investee Country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fund Country × Quarter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Standard Error Clusters:</i>										
Fund Country	62	32	59	37	62	36	15	12		
Firm Country	28	19	28	24	28	23	12	11		
N	38,667	2,270	34,618	6,319	39,030	1,907	4,717	4,054		
Adjusted R ²	0.726	0.793	0.728	0.731	0.728	0.733	0.832	0.729		
Difference in α_1	8.157** (2.688)		6.970** (2.902)		5.238*** (1.984)		12.316*** (1.121)			

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Fund-specific Information Use

This table estimates regressions in the form of:

$$PercentUSXlistedInvestment_{ijt} = \alpha_1 PostMMoU_{it} + \alpha_2 PercentUSXlisted_{it} + \beta_{ij} + \gamma_{jt} + \varepsilon_{ijt}$$

where i indexes firm country, j indexes fund country, and t indexes time (quarter and year). β_{ij} is a time-invariant fixed effect for each fund country-firm country pair, and γ_{jt} is a time-varying fixed effect for each fund country. The dependent variable is calculated as $100 \times$ investment by country j 's funds in crosslisted companies scaled by all investment from country j 's funds in country i stocks. $PercentUSXlisted_{it}$ is calculated analogously to the dependent variable in each column, but uses market capitalization rather than fund investment in calculating the numerator and denominator. $PostMMoU_{it} = 1$ if country i signed the MMoU before quarter t , 0 if country i had not applied to sign the MMoU before quarter t , and missing if quarter t is between country i 's application to sign the MMoU and the date of signing. In each column the sample consists of non-US foreign (to the investee country) funds. Column (1) restricts the sample to the funds FactSet characterizes "Medium," "Low," or "Very Low" turnover, and Column (2) restricted to "High" and "Very High" turnover funds. Observations are weighted by the number of funds in country j . Standard errors are clustered at the firm and fund country levels.

	Investment	
	(1)	(2)
PostMMoU	6.960*** (2.561)	3.104 (2.172)
PercentUSXlistedMarketCap	0.955*** (0.080)	0.959*** (0.093)
Sample Funds:	Low Turnover	High Turnover
<i>Fixed Effects:</i>		
Fund Country \times Investee Country	Yes	Yes
Fund Country \times Quarter	Yes	Yes
<i>Standard Error Clusters:</i>		
Fund Country	63	51
Firm Country	28	28
N	42,245	28,812
Adjusted R ²	0.717	0.585
Difference in α_1		3.856*** (1.086)

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Type of US Crosslisting

This table estimates regressions in the form of:

$$PercentUSXlistedInvestment_{ijt} = \alpha_1 PostMMoU_{it} + \alpha_2 PercentUSXlisted_{it} + \beta_{ij} + \gamma_{jt} + \varepsilon_{ijt}$$

where i indexes firm country, j indexes fund country, and t indexes time (quarter and year). β_{ij} is a time-invariant fixed effect for each fund country-firm country pair, and γ_{jt} is a time-varying fixed effect for each fund country. In column (1), the dependent variable is calculated as $100 \times$ investment by country j 's funds in companies that directly list on a US exchange or have a sponsored ADR scaled by all investment from country j 's funds in country i stocks. In column (2), the numerator of the dependent variable is investment in firms that have an unsponsored ADR. $PercentUSXlisted_{it}$ is calculated analogously to the dependent variable in each column, but uses market capitalization rather than fund investment in calculating the numerator and denominator. $PostMMoU_{it} = 1$ if country i signed the MMoU before quarter t , 0 if country i had not applied to sign the MMoU before quarter t , and missing if quarter t is between country i 's application to sign the MMoU and the date of signing. In each column the sample consists of non-US foreign (to the investee country) funds. Observations are weighted by the number of funds in country j . Standard errors are clustered at the firm and fund country levels.

	Investment	
	(1)	(2)
PostMMoU	10.687*** (2.695)	0.574 (1.273)
PercentUSXlistedMarketCap	0.752*** (0.076)	0.838*** (0.082)
Investment Firms:	Registrants	Non-registrants
<i>Fixed Effects:</i>		
Fund Country \times Investee Country	Yes	Yes
Fund Country \times Quarter	Yes	Yes
<i>Standard Error Clusters:</i>		
Fund Country	60	56
Firm Country	28	21
N	38,030	20,285
Adjusted R^2	0.717	0.750
Difference in α_1		10.113*** (2.909)

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Investee Country Ties to the US

This table estimates regressions in the form of:

$$y_{ijt} = \alpha_1 \text{PostMMoU}_{it} + \alpha_2 (\text{USTradeImportance}_i \times \text{PostMMoU}_{it}) + \alpha_3 \text{PercentUSXlistedMarketcap}_{it} + \beta_{ij} + \gamma_{jt} + \varepsilon_{ijt}$$

where i indexes firm country, j indexes fund country, and t indexes time (quarter and year). β_{ij} is a time-invariant fixed effect for each fund country-firm country pair, and γ_{jt} is a time-varying fixed effect for each fund country. The dependent variable is calculated for each quarter t , as $100 \times$ aggregate investment by funds from country j in firms from country i that crosslist in the US divided by aggregate investment by funds from country j in firms from country i . $\text{PostMMoU}_{it} = 1$ if country i signed the MMoU before quarter t , 0 if country i had not applied to sign the MMoU before quarter t , and missing if quarter t is between country i 's application to sign the MMoU and the date of signing. $\text{PercentUSXlistedMarketcap}_{it}$ is $100 \times$ the marketcap of firms from country i in quarter t that crosslist in the US divided by the marketcap of firms from country i . $\text{USTradeImportance}_i$ is calculated for the year 2000, the importance of exports from country i to the US. This variable is measured by percentile ranking export destinations from country i by export value scaled by counterparty GDP, centered so the mean (rank 65) equals 0. Columns (1) and (2) partition the sample of non-US foreign fund investment by whether or not the firm country had SEC activity prior to the MMoU. SEC activity in the firm country before the MMoU is defined as firm countries that had a bilateral cooperative agreement with the SEC in place and the SEC pursued an enforcement action against a firm from country i prior to i signing the MMoU. The sample for column (3) consists of all foreign investment (to the investee country) by non-US foreign funds. Observations are weighted by the number of funds in country j . Standard errors are clustered by firm country and by fund country.

	Investment		
	(1)	(2)	(3)
PostMMoU	-1.305 (2.300)	10.753*** (2.879)	7.708*** (2.583)
PostMMoU \times USTradeImportance			-0.108* (0.059)
PercentUSXlistedMarketCap	0.916*** (0.050)	0.971*** (0.089)	1.275*** (0.263)
PercentUSXlisted \times USTradeImportance			-0.006 (0.004)
SEC Activity in Firm Country Before MMoU:	Yes	No	Both
<i>Fixed Effects:</i>			
Fund Country \times Investee Country	Yes	Yes	Yes
Fund Country \times Quarter	Yes	Yes	Yes
<i>Standard Error Clusters:</i>			
Fund Country	63	60	64
Firm Country	11	17	27
N	17,906	24,454	41,409
Adjusted R ²	0.616	0.745	0.729
Difference in α_1		12.058*** (3.176)	

Standard errors in parentheses
 * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 10: Fund Trust in US Institutions

This table estimates regressions in the form of:

$$\begin{aligned}
 \text{PercentUSXlistedInvestment}_{ijt} = & \alpha_1 \text{PostMMoU}_{it} \\
 & [+ \alpha_2 (\text{PostMMoU}_{it} \times \text{USVotingSimilarity}_i)] \\
 & + \alpha_3 \text{PercentUSXlistedMarketcap}_{it} \\
 & [+ \alpha_4 (\text{PercentUSXlistedMarketcap}_{it} \times \text{USVotingSimilarity}_i)] + \beta_{ij} + \gamma_{jt} + \varepsilon_{ijt}
 \end{aligned}$$

where i indexes firm country, j indexes fund country, and t indexes time (quarter and year). $\text{PercentUSXlistedInvestment}_{ijt}$ is calculated for each quarter t , as $100 \times$ aggregate investment by funds from country j in firms from country i that crosslist in the US divided by aggregate investment by funds from country j in firms from country i . $\text{PostMMoU}_{it} = 1$ if country i signed the MMoU before quarter t , 0 if country i had not applied to sign the MMoU before quarter t , and missing if quarter t is between country i 's application to sign the MMoU and the date of signing. $\text{PercentUSXlistedMarketcap}_{it}$ is $100 \times$ the marketcap of firms from country i in quarter t that crosslist in the US divided by the marketcap of firms from country i . $\text{USVotingSimilarity}_j$ is the percentile rank ordered similarity of country j 's voting in the UN General Assembly to the US's votes, centered at 0. The sample for column (1) is all foreign investment by non-US funds. In columns (2) and (3), the sample of all foreign investment by non-US funds is partitioned by whether or not the fund country ever operated under a Communist regime. Observations are weighted by the number of funds in country j . Standard errors are clustered by fund and firm countries.

	Investment		
	(1)	(2)	(3)
PostMMoU	5.651** (2.291)	6.879*** (2.558)	0.091 (3.148)
PostMMoU \times USVotingSimilarity	0.080*** (0.030)		
PercentUSXlistedMarketCap	0.945*** (0.076)	0.947*** (0.080)	0.620*** (0.086)
PercentUSXlisted \times USVotingSimilarity	0.00003 (0.001)		
Former Communist Fund Countries:	Both	No	Yes
<i>Fixed Effects:</i>			
Fund Country \times Investee Country	Yes	Yes	Yes
Fund Country \times Quarter	Yes	Yes	Yes
<i>Standard Error Clusters:</i>			
Fund Country	57	51	13
Firm Country	28	28	28
N	38,397	36,089	6,271
Adjusted R ²	0.724	0.730	0.630
Difference in α_1		6.788*** (2.608)	

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Spillovers to Foreign Markets

This table estimates regressions in the form of:

$$PercentUSXlistedInvestmentLocation_{ijt} = \alpha_1 PostMMoU_{it} + \alpha_2 PercentExchgUSXlistedMarketcap_{it} + \beta_{ij} + \gamma_{jt} + \varepsilon_{ijt}$$

where i indexes firm country, j indexes fund country, and t indexes time (quarter and year). $PercentUSXlistedInvestmentLocation_{ijt}$ is calculated for each quarter t , as $100 \times$ aggregate investment by funds from country j in the securities that trade in the US [home] market of firms from country i that crosslist on a US exchange by aggregate investment by non-US, foreign funds from country j in firms from country i . Column (1) is calculated using investment on the US market whereas column (2) is calculated using investment in the home market. $PostMMoU_{it} = 1$ if country i signed the MMoU before quarter t , 0 if country i had not applied to sign the MMoU before quarter t , and missing if quarter t is between country i 's application to sign the MMoU and the date of signing. $PercentExchgUSXlistedMarketcap_{it}$ is $100 \times$ the marketcap of firms from country i in quarter t that crosslist on a US exchange divided by the marketcap of firms from country i . Observations are weighted by the number of funds in country j . Standard errors are clustered by fund and firm countries.

	Investment	
	(1)	(2)
PostMMoU	3.906* (2.099)	-2.913 (2.315)
PercentExchgUSXlistedMarketCap	0.374*** (0.101)	0.352*** (0.121)
Investment Location:	Home Market	US Exchange
<i>Fixed Effects:</i>		
Fund Country \times Investee Country	Yes	Yes
Fund Country \times Quarter	Yes	Yes
<i>Standard Error Clusters:</i>		
Fund Country	64	64
Firm Country	28	28
N	41,181	41,181
Adjusted R ²	0.692	0.808
Difference in α_1		6.819* (4.052)

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$