

**Can Corporate Issuers Earn From Conformity
among Institutional Investors?
Evidence from International Bonds**

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Abstract

We study whether bondownership by peers affects international institutional investor demand of bonds and what implications this relationship has for the prices of new bond issues and the decisions of firms to issue abroad. We use detailed US corporate bond ownership data and show that the demand of US bonds by international institutions is positively affected by bondownership of other investors from the same country. International ownership is related to higher yield spreads for the domestic issues and to lower offering yield spreads for the international issues. Firms issue in countries where their bondholders are located, as the peers of their investors provide additional demand. The results are strongest for the firms that have higher deviation of analyst forecasts and lower ratings.

JEL Classification: G12, G3, G32

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Introduction

International issues of securities are usually explained by hedging of foreign exchange risk or exploiting of temporary market “misvaluations” – i.e., differences in conditions that foreign firms get in a certain country for their securities (e.g., Henderson et al., 2006). However, little research has been devoted to analyze the sources of these misvaluations across different foreign firms, especially how such misvaluations are related to their varying investor bases.

The type of investors that have already invested into the firm directly affects the demand for firm’s securities and their decisions to issue them. For example, a high presence of proximate institutional investors is in general interpreted as a sign of better governance (“monitoring”) that increases the interest in the firm. On the other hand, the existing investors may play a role of informal vouching that firm’s securities have certain appealing characteristics. In this way they affect the confidence that other similar (“peer”) investors might have in the firm. These two motivations of investors are often observationally equivalent and difficult to separate. Indeed, the identification how much the demand for new securities of the firm is driven by the similarities in tastes between new and existing investors and how much by the proximity of existing investors to the firm is challenging in the context of domestic capital raising decisions.

In this paper, we consider the international issuance of bonds by US firms, a case in which the monitoring and peer confidence motivations can be separated. Despite their size, international bond issuances by US firms have been scarcely noticed in the literature. Aggregate statistics¹ have documented a dramatic rise in international borrowing by US corporations. The net corporate debt that US firms raised internationally has increased from \$1.8bn (6% of total changes in US corporate debt) in 1994 to \$173.3bn (54% of total changes in US corporate debt) in 2007, with a total outstanding amount raised going up from \$48bn to \$730.6bn. These figures stand in stark contrast with international equity offerings from US firms. Indeed, the number of US firms that have their stocks listed abroad is relatively limited. In 2007, US firms raised only \$17.6bn of equity in the markets outside of the US. Moreover, when placing a bond internationally US firms indicate that they target foreign investors. Thus, it comes as no surprise that the fraction of international bondownership in US corporations has also grown lately, from 7.8% in 1994 to 24% in 2007.

We entertain two alternative hypotheses. The first hypothesis – “the monitoring hypothesis” – focuses on the proximity to the firm’s headquarters. The investors who are better able to monitor are the ones closer to the firm’s central decision entity. This makes

¹ Aggregate statistics come from the US Department of Treasury International Capital System (for international bondownership) and Bank of International Settlements (for international issues of securities).

domestic investors better qualified to monitor the firm, so a higher presence of international investors may be interpreted as a sign of lower monitoring/screening quality. The alternative hypothesis – “the peer confidence hypothesis” – relates the trust that investors have in a firm to the fractions of other “peers” – i.e., the other investors that come from the same country – holding a stake in such a firm. If investors have similar tastes at a country level, the trust in the firm by potential investors increases with the existing fraction of their peers in the firm.

These two channels deliver alternative pricing implications for the bonds issued by US firms. According to the monitoring hypothesis, the presence of a sizable fraction of international investors depresses both international and domestic investor demand. The negative impact on both international and domestic investor demand lowers the prices of domestic as well as international bonds issued by the firm.

In contrast, according to the peer confidence hypothesis, when markets are segmented between international and domestic investors, the presence of international investors reduces the cost of financing for international issues but raises it for domestic issues. Indeed, in the presence of scarce substitutability between international and domestic investors, higher demand by international peers pushes up the bond prices for international issues. The lower demand for domestic bonds leads to a negative relation between international bondholding and bond prices for domestic issues.

These predictions have direct implications for the issuance choice of the firm. According to the peer confidence hypothesis, the likelihood that firms issue internationally rises with the fraction of international investors. Indeed, a more sizable international bondownership would make international issues cheaper and domestic issues more expensive. In contrast, according to the monitoring hypothesis, previous international bondownership would not matter and could actually hamper new international issues. Firms would only issue internationally to satisfy their currency hedging demand or engage in tax arbitrage.

We empirically study these issues focusing on the choice of US firms between issuing bonds domestically and issuing them abroad² in the period from 1998 to 2006. Our identification strategy is two-fold. First, we establish that the choice of international institutions to invest in the bond is related to the previous investments of their peer institutions in the issuer of that bond. Second, we provide evidence that controlling for the supply-side effects, US firms benefit most by issuing international bonds if they already have international investors.

² We make a distinction between domestic and international bonds based on where they are marketed rather than currency in which they are issued.

We start by analyzing the main factors that induce international institutional investors (i.e., mutual funds, insurance firms, pension funds) to purchase bonds issued by US firms. In line with the peer confidence hypothesis, we find that their investment is positively affected by the presence of investors coming from the same country (“peers”) among the existing bondholders of the firm. One standard deviation of higher peer ownership is related to a 167% higher demand for an average international investor in a newly issued international bond. To a lesser extent international demand is also positively affected by the presence of US bondholders in the firm, which gives support for the monitoring hypothesis.

We then look at the effect of international bondownership in the primary market of bond issues. We find support for the peer confidence hypothesis. A higher fraction of international ownership is related to lower yield spreads for international issues. One standard deviation higher fraction of international ownership is related to 25.1bp lower yield spreads of international issues. This finding is economically significant since the median yield spread for international issues in the sample is 72.4bp.

To further distinguish the two hypotheses, we focus on the cases in which the differences in prediction are stronger. The monitoring hypothesis predicts that the scarce ability of international investors to monitor the firm would matter more for the firms that are characterized by higher asymmetry of information and uncertainty. At the same time, the peer confidence hypothesis predicts that these are the very same firms in which the impact of peer pressure and word-of-mouth on international demand would be stronger – but in the opposite direction. We therefore split the sample into the subsamples of the firms with high and low dispersion of analyst forecasts of firm’s earnings (as well as high and low rating quality). The results on the pricing implications of international investor ownership are stronger for firms with higher analyst dispersion or lower rating quality in the direction predicted by the peer confidence hypothesis. In particular, higher demand by international investors reduces bond prices for domestic bonds and increases bond prices for international bonds if the firm is more opaque but has no such effect if it is in a good standing.

Firms exploit these effects by issuing more in the countries from where the investors that have a stake in the bonds of the issuing firm come. One standard deviation higher international bondownership is associated with a 2.1% higher probability of issuing internationally. This represents a 11.7% increase with respect to its unconditional mean probability of issuing international bond. We also find evidence that corresponding relationship holds for investors located in euro area and subsequent denomination of firm’s bonds in euro as well as Japanese investors and yen.

It may seem that these results imply that firms would like to have their bondownership concentrated among investors from the same country, as this would maximize the additional confidence due to the peer effect. However, such polar cases would not be an equilibrium result and, in fact, we find that there are limits to the peer effects for US firms. The effect disappears at higher levels of international bondownership (15-20%), suggesting that the ability to adequately monitor the firm is marginally more important when there is little domestic ownership in the firm. This finding is also supported by the analysis of bond prices in the secondary market of domestic bonds. We find that the contemporaneous positive relationship between the increase in international ownership and higher yield spreads of domestic bonds only holds for firms with high levels of international bondownership.

We can therefore interpret our results as the optimal reaction of a firm that experienced an increase in the ownership by international investors who presumably started with buying domestically issued bonds of the firm. Indeed, we find that a firm has higher probability to launch an international issue after international investors have purchased sizable stakes in its domestic bonds in the secondary market. Interestingly, we find that no firm that already has an international bondownership higher than 15% in its domestic bonds enters the international bond for the first time.

Our results are not affected by the fact that the firm is already borrowing from the international banks. This finding conflicts with the common view that banks provide an alternative monitoring that also helps the bondholders. The fact that bank debt tends to be senior with respect to bonds may help explain the lack of reliance of bondholders on bank's monitoring.

Also, we explicitly control for the foreign assets of the issuers. One might argue that the effect of previous international investors in the firm is present only because investors demand firm's bonds if the firm has assets in their country, effectively spuriously relating to home bias of investors. However, the share of firm's assets that are located abroad does not influence our results. Moreover, we control for the international sales of the firm. This takes care of both currency hedging effect and tax considerations of bond issues. Both hedging needs and the ability to utilize interest deductions largely depend on the location of income (Henderson, Jegadeesh and Weisbach, 2006). We also find that our results are stronger if we only consider bond issues denominated in dollars which helps to rule out the potential confounding effect of currency hedging motives.

Our findings contribute to different literatures. First, they relate to the literature on international financing. Most of the literature analyzing the determinants of the international corporate bond market has focused on the currency hedging perspective (e.g., Kedia and Mozumdar, 1998, McBrady and Schill, 2005, Henderson, Jegadeesh and Weisbach,

2006). This argument surely applies to some international issues and we reconfirm these findings. However, many international bond issues of US firms are denominated in US dollars, opening up the possibility that currency hedging is not the sole reason for international financing. In a recent study on the reasons of international bond issues Siegfried, Simeonova and Vespro (2007) find no evidence for demand side led motives, that they proxy by deposit-to-gdp ratio in the issuing location. We claim that, given that demand side effects are not constant across firms, one way to identify them is by conducting a micro-level analysis of the peer influence on the purchasing decision by international investors.

Recently, the literature has expanded to analyze international borrowing from banks (e.g. Carey and Nini, 2007, Houston, Itzkowitz and Naranjo, 2007). Our results suggest that the hard information about borrowers which is crucial in international bank lending (Houston, Itzkowitz and Naranjo, 2007), in the public markets can be replaced by familiarity to other investors. Also, by controlling for the international bank borrowing, we indirectly relate the two sources of fixed income financing abroad.

The paper to which our study is more closely related is the seminal work by Kim and Stulz (1988). They claim that the supply for eurobonds is not perfectly elastic and thus some firms can make use of lower interest rates by issuing abroad when the demand for such securities turns out to be high. We build on these results, confirming that the supply is not perfectly elastic and markets are segmented. We contribute by inspecting the role of peer international ownership and quantifying its impact on the financing strategies of the firms and bond prices.

Second, we relate to the literature on international ownership. This has mostly concentrated on the benefits of higher foreign (mostly US) ownership of non-US firms (e.g. Aggarwal, Klapper and Wysocki, 2005), although there is now a growing literature on the foreign equity ownership of US corporations as well. For instance, Cai and Warnock (2006) look into the foreign equity ownership of US corporations and find that foreign investors can achieve international diversification by investing in internationally diversified US firms. Kang and Kim (2008) find that foreign blockholders are less likely to engage into governance activities in US targets because of information asymmetries. Less is known about the benefits of international bondholders for US firms. None of the traditional theories used to explain the benefits of international ownership applies in this case. For example, having international bondholders will not necessarily improve monitoring, nor will it provide a better diversification of cash flows or more liquid markets than if domestic investors held the firm. We contribute to this literature by showing the effects of international ownership in the bond market and its impact on the decisions of US firms.

Third, we relate to the literature on familiarity. Investors have been shown to invest in the stocks of firms where they work (Benartzi, 2001), that are headquartered close to where they live (Huberman, 2001, Coval and Moskowitz, 1999, 2001) or located in the country they come from (Bhattacharya and Groznic, 2008). Standard explanations include some form of limited information, transaction and search cost or limited investor awareness (Cooper and Kaplanis, 1994, Kang and Stultz, 1997, Lewis, 1999, Strong and Xu, 2003). Our two hypotheses are vaguely related to the information hypothesis (“investor recognition hypothesis” of Merton (1987)) and to the governance hypothesis (Dahlquist, Pinkowitz, Stulz and Williamson, 2003) in the home bias literature. We expand the familiarity literature to show that investors also tend to invest in the bonds outside the home market in which their peers already invest. In addition, we show that firms might be able to exploit familiarity bias.

Finally, we also relate to the literature on “word of mouth” (e.g., Ellison and Fudenberg, 1995, McFadden and Train, 1996, Akerlof, 1997, Bikchandani, Hirshleifer and Welch, 1998, Bala and Goyal, 1998, Bertrand, Luttmer and Mullainathan, 1999). Recently, Hong, Kubik and Stein (2002) show how social interaction – defined as interaction between people that belong to the same geographical community – affects the decision of the investors to enter the stock market. In an international context Parwada and Yang (2008) find that international equityholders mimic each other’s investments into US firms and there is high within-country commonality in the portfolio holdings of US firms.

The remainder of the paper is articulated as follows. Section 2 lays out our main testable hypotheses. Section 3 describes the sample and the main variables we use. Section 4 studies bondholder demand. Section 5 relates peer ownership to bond yield spreads. Section 6 studies issuance decision. Section 7 discusses the limits to peer effects. A brief conclusion follows.

2. Testable hypotheses

The conditions at which firms are able to borrow largely depend on how much potential lenders trust them. Trust in the firm can originate in two ways. First, it relates to the ability of the lenders to learn about and monitor the borrower. Second, and especially when the monitoring ability is constrained, the trust of potential lenders depends on the degree of “familiarity” with the investors who are financing the firm at that moment. Investors might increase their trust in the firm if it is financed by someone with whom they are familiar.

As for the first effect, - i.e., the ability of the lenders to learn about and monitor the borrower – the literature agrees that the precision of the signal obtained by the lender about the borrower’s quality decreases with distance (Diamond, 1984, Petersen and Rajan, 1994,

Berger and Udell, 1995, Hauswald and Marquez, 2000, and Sufi, 2005). Proximity also improves the borrower's governance either because the lender has more influence over the managers (Rajan, 1992) or because the lender may monitor them more effectively, therefore, reducing moral hazard concerns (Diamond, 1984, James, 1987, Lummer and McConnell, 1989, Diamond, 1991). These factors cause lender proximity improve screening and monitoring of the borrowers. In the international context, previous evidence also shows that geographical proximity is a measure of access to inside information (e.g., Coval and Moskowitz, 1999, Garmaise and Moskowitz, 2004, Grinblatt and Keloharju, 2001) and that international investors are at a informational disadvantage with respect to the domestic ones (e.g., Brennan and Cao, 1997).

Overall, these considerations suggest that a higher fraction of international – and therefore more distant from the headquarters – lenders would have negative implications for the perceived quality of the debt. Indeed, given their informational disadvantage, international investors are less able than domestic investors to monitor and screen the investment. We therefore expect the presence of international investors to negatively affect the demand of other international investors, be they their peers or international investors from other countries.

In contrast, the second effect posits that trust can be established and reinforced if somebody with whom the potential investor is familiar has already invested in the asset. Many recent studies have documented the role of familiarity and trust in financial markets (e.g., Guiso, Sapienza and Zingales, 2005, Sapienza, Toldra and Zingales, 2007). Distrusting individuals are less likely to invest in risky assets and, conditional on doing it, they will do it on a smaller scale. This may happen because word-of-mouth communication either transmits information or influences the way this information is elaborated (e.g., Ellison and Fudenberg 1995, McFadden and Train 1996, Akerlof 1997, Bala and Goyal 1998, Bikhchandani, Hirshleifer and Welch 1998, Bertrand, Luttmer and Mullainathan 2000). For instance, it could reduce the perception of the informational uncertainty or because “herding with the pack” generates a psychological sense of safety. An example of such case could be the finding that social interaction in the community affects the decision of investors to enter the stock market (Hong, Kubik and Stein, 2004).

In our context, we argue that this link is established by previous bondownership in the firm by peers of the investors. In particular, the international investors – at informational disadvantage as they are located far away from the firm – rely on their “proximity” *not so much to the firm but to other investors in that firm*. The trust of international investors in a firm is reinforced if the peers of these international investors hold bonds in the same firm.

This trust may be related to the selection of creditworthy firms, the ability of the peers in enforcing covenants or in general to their ability in protecting bondholders' rights.

More broadly, there could be alternative explanations to trust that could justify investors to follow their peers and invest in the same bonds. For instance, international managers could be investing into the bonds because of relative wealth concerns (Abel, 1990). They might be willing to follow other investors if their wealth is sensitive to the wealth of others (e.g. for performance measurement reasons as in Scharfstein and Stein, 1990). Although we stress an explanation based on trust, our results and conclusions do not distinguish between the alternative explanations of the peer effects. Moreover, this hypothesis fits within the general theory of investor tastes defined as the “preferences that shift over time in the ways that are unrelated to corporate fundamentals” (Baker, 2009). Our hypothesis relies on investor tastes that arise endogenously between certain groups of investors and might not be related to corporate characteristics.

Overall, these considerations suggest two alternative hypotheses. The peer confidence hypothesis posits that investors prefer the bonds of firms with higher peer bondownership as they condition their choice on the actions of their peers. That is, investors, be they domestic or international, trust other investors from their countries. In contrast, the monitoring hypothesis posits that investors – both domestic and international – prefer the bonds of firms with higher fraction of domestic investors.

The two hypotheses agree that domestic investors rely on other domestic investors but they differ in terms of the reaction of the demand of international investors. According to the peer confidence hypothesis, international investors rely on their peers and do not follow the bondownership of non-peer investors, be they domestic or foreigners from other countries. On the contrary, according to the monitoring hypothesis, international investors follow domestic bondownership. Holding domestic ownership constant, international investors do not distinguish between the holdings of peer and non-peer international investors.

Both hypotheses suggest that the effect of international bondownership is stronger for more opaque and more volatile firms. Indeed, these are the firms in which the scarce ability of international bondowners to monitor the firm would matter more as well as the firms for which the positive role of trust in the decisions of peers would be stronger.

H1a: According to the peer confidence hypothesis, the demand of international investors is positively related to the fraction of peers already holding the bonds.

H1b: According to the monitoring hypothesis, the demand of international investors is positively related to the fraction of domestic investors holding the bonds.

The predictions on the demand of the bonds also have direct pricing implications. Let us just focus on domestic versus international investors. According to the monitoring hypothesis, a lower presence of domestic investors – the ones better able to monitor – would depress both domestic and international demand, inducing a drop in the prices for *all* bonds of the firm. The peer confidence hypothesis would instead suggest that the demand by international (domestic) investors should be higher when there is a larger combined international (domestic) bondownership in the firm.

Let us now suppose that the markets are segmented at the country level and there is no perfect substitution between domestic and international investors³. In the presence of market segmentation, the increase in the international demand for internationally-placed bonds will not be offset by an equal reduction of the domestic demand for them. Therefore, higher international bondownership – and thus lower domestic bondownership – would push prices up (down) for internationally (domestically) issued bonds.

H2a: According to the peer confidence hypothesis the fraction of international bondowners is positively related to bond prices for international issues and negatively related to bond prices for domestic issues.

H2b: According to the monitoring hypothesis the fraction of international bondowners is always negatively related to bond prices, both for international issues and for domestic issues.

If the firm issues in a country in which a significant share of its bondholders are already located, it can get higher prices for its bonds as their peers would provide additional demand, and this has implications for the issuance choice of the firm. If the peer confidence hypothesis holds, firms with more international bondowners will be more inclined to issuing internationally. Indeed, the higher fraction of international bondowners would marginally lower the cost of issuing internationally and increase the cost of issuing domestically.

Instead, according to the monitoring hypothesis, firms will only issue internationally because of supply side effects such as currency hedging, tax arbitrage or similar reasons and will do it within the limits, so as not to trigger a drastic increase in yields due to increased international ownership. Therefore, international bondownership should not affect the decision of the firm to issue internationally or will affect it negatively when the firm reaches these limits.

³ Legal restrictions – eurobonds are mostly held outside the US – and institutional constraints – asset managers with a mandate to invest domestically cannot hold international bonds – are just two of the drivers of market segmentation.

H3a: According to the peer confidence hypothesis the firm's preference to issue internationally is positively related to the fraction of international bondholders it already has.

H3b: According to the monitoring hypothesis the firm's preference to issue internationally is not related (or is negatively related) to the fraction of international bondholders it already has.

We now turn to the empirical testing, starting with a description of data and the variables that we use.

3. Data and Empirical Testing Issues

3.1 Data Sources

We combine multiple sources of data: CRSP/Compustat, IBES, Lipper's eMAXX, Mergent/FISD Corporate Bond Dataset, Reuter's LPC Loanconnector, SDC Global New Issues, Thomson Worldscope and Bloomberg.

Quarterly data on bond holdings come from Lipper's eMAXX fixed-income database. It contains details of fixed-income holdings for nearly 20,000 insurance-managed funds, mutual funds and public pension funds from around 30 countries. The database provides information on quarterly ownership of more than 40,000 fixed-income issuers with total par amount of fixed income securities of \$5.4 trillion. Data for years 1998-2006 is used for analysis.

The holding data was aggregated at the managing firm family level using the Dun&Bradstreet identification number for ultimate owners of managing firms. The geographical origin for a fund family is assigned to be the country where the managing firm that manages the largest funds for the family is located. We only use the families that do not change the country of origin in the sample period.

Data on the bank lending are provided by the LPC Loanconnector database. Financial data on firms are taken from CRSP/Compustat database. Here, we exclude firms with negative market-to-book ratio⁴. The data for dispersion in analyst forecasts of earnings are drawn from IBES. Monthly data on yield spreads in the secondary market come from Bloomberg. Information on the geographical breakdown of the assets (as well as turnover) is taken from Thomson Worldscope dataset that uses the self-reported data from the firms, such as annual reports. Data on the general interest rate levels in the market are accessed via Datastream while data of aggregate international investor ownership of corporate bonds

⁴ Given that a large fraction of international issues are made by financial firms, we keep them in the sample. However, since their financial data might be incompatible with industrial firms, we do not elaborate on the financial variables that are used as controls in our estimations.

in the US are collected from Treasury Bulletin, provided by US Department of Treasury International Capital System.

The sample of public bond issues is drawn from the SDC Global New Issues and Mergent/FISD Corporate Bond Dataset for the years 1998-2006. We use Mergent dataset when we need to match bonds across different datasets as it reports unique 9-digit CUSIPs for the bonds. When we do not need bond-level matching across different databases, we use SDC as it provides a wider sample. In the SDC sample, the issues with the market area indicated as Eurobond, Global or International are considered as international issues. In the Mergent sample, the issues indicated as Eurobond, Global or listed on international bond exchanges are treated as international. Convertible bond, equity-related, unit issues and perpetual maturity issues are excluded from the analysis. We also exclude bonds with maturity shorter than one year (commercial paper). After matching with the firm specific data and data from Lipper, we are able to use 18,105 domestic and 4,348 international bond issues in the bond-level analysis.

3.2 Main Measures

Ownership variables

The overall international bondownership for a specific issuer is calculated as the percentage of the face value of bonds in the Lipper database that are held by international managing firm families, further interchangeably referred to as institutional investors or managing firms. We further distinguish international bondownership into bonds that are held by managing firms located outside of the US (referred to as ‘Overseas’) and bonds that are held by managing firms that belong to international families but are located in the US (referred to as ‘NY’).

For every institutional investor, “peers” are defined as all the other institutional investors that have the same country of origin. For every investor, we construct the bond ownership by peers in a specific issuer as the fraction of the face value of the bonds in the Lipper database that are held by institutional investors from the same country.

Bank lending variables

International bank lending is estimated in a similar vein as the international bond ownership. The overall international bank lending is calculated as the percentage of the outstanding loan sizes in LPC Loanconnector database that are provided by the financial institutions which have non-US ultimate parents. International bank lending is further distinguished as being originated from outside the US (referred to as ‘Overseas’) or from

within the US (referred to as ‘NY’). Given the lack of more detailed data, every participating bank in a syndicate is treated as having an equal share.

Bank lending from the same country (“peer banks”) is estimated in a similar fashion as bondownership by peers and is equal to the percentage of the bank loans granted by the banks located in the same country as the institutional investor, out of all the outstanding bank loans of the firm, as recorded in LPC Loanconnector database. In all regressions where we use bank lending variables, we include an additional (unreported) dummy to indicate if these data are available for the firm.

Managing firm specific variables

We construct the managing firm family specific variables using information from the Lipper database. ‘Managing firm size’ refers to the aggregate face value of the bonds that are held by the managing firm. ‘Managing firm ownership of international issues’ is calculated as the percentage of the face value of international bonds out of the face value of all the bonds of US firms held by the managing firm. ‘Managing firm concentration’ is the degree of diversification of the bond portfolio of the managing firm. It is defined as the Herfindahl Index, which is estimated as the sum of squared fractions of the bond portfolio invested in the bonds of different issuers. These portfolio weights are also used to estimate the weighted average of ratings of different issuers held by the managing firm (‘Managing firm rating profile’), the weighted average of leverage ratios (‘Managing firm leverage profile’), the weighted average of market-to-book ratios (‘Managing firm M/B profile’), the weighted average of size of assets of issuers (‘Managing firm issuer size profile’) and the weighted average of ROA ratios (‘Managing firm ROA profile’).

Issue specific variables

The ‘Offering yield spread’ is calculated as the number of basis points over the comparable maturity Treasury bond for fixed rate issues and as the number of “basis point spread between the coupon rate and the rate of the index off which the coupon is reset for floating rate issues⁵”. Yield spreads are winsorized at the 0.1% level. ‘Option adjusted spread’ proxies for the secondary market yield spread. It is defined as the spread over the Treasury yield curve that is required to discount bond payments to match its market price.

The ‘Quality spread’ in the market is calculated as the difference between Moody’s Long term corporate yield averages for Aaa bonds and Baa bonds. The ‘Credit spread’ in the market is estimated as the Moody’s Long term corporate yield spread for Aaa bonds over 30 year Treasury bond rate. We use the 30 year Treasury bond rate as a control.

⁵ As defined in SDC Global New Issues database.

We also use some issue-specific variables as controls. They are: ‘Issue size’, ‘Maturity’ (defined in days), ‘Moody’s Long term debt rating’, ‘Subordination’ and ‘Covenants’. Moody’s rating is defined on an increasing scale from 0 to 21, where 21 refers to Aaa. ‘Subordination’ varies according to a scale from 0 to 7, where 7 refers to Senior security level. ‘Covenants’ measures the number of covenants for the specific issue. It is either defined as a dummy variable, equal to one if any bondholder protective covenant is in place in the bond issue and zero otherwise, or constructed as the number of bondholder protective covenants available, where the maximum is 15.

Issuer specific variables

Firm specific financial variables are ‘Tangibility’, ‘ROA’, ‘Asset size’, ‘Leverage’, ‘Market-to-book ratio’. ‘Tangibility’ is the percentage of tangible assets of the total assets of the firm. ‘Market-to-book ratio’ is the market-to-book equity ratio, while ‘ROA’ is the operating profit over the beginning period assets. ‘Leverage’ is the ratio of book value of debt to book value of assets. ‘Asset size’ is the logarithm of the firm’s total assets.

‘Analyst dispersion’ is the standard deviation of the earnings forecasts of the analysts tracking the firm as reported in the IBES database. ‘Share of assets abroad’ refers to the fraction of total assets in the last fiscal year generated from foreign countries as reported in the Thomson Worldscope dataset. It is calculated as a complement to the firm’s assets from the US. Since the breakdown and the names of the regions/countries differ firm by firm in Thomson Worldscope dataset, the US is defined as the broadest region that geographically includes the US⁶. ‘Share of assets in country’ and ‘Share of assets from currency area’ variables are calculated accordingly, e.g. ‘Share of assets in Japan’ denotes the fraction of total assets in the last fiscal year generated from the narrowest region that geographically includes Japan. ‘Share of sales abroad’ variable is defined accordingly. A complete list of variables used is provided in the Appendix.

We report the descriptive statistics in Table 1. The average book value of assets of a median firm with bonds tracked in the Lipper database is about 1.3 billion. This compares to about 0.2 billion in the whole Compustat sample. Also, the median level of leverage is 0.39, tangibility is 0.96, market-to-book is 3.23 while profitability is 0.11. These figures compare to

⁶ For instance, a firm might report sales from a self-described geographical category ‘North America/Europe’. If no further details are provided, we treat the revenues from this geographical region as revenues from the US. Given that some other firms might have as narrow geographical category as ‘United States’, the international sales variable is not comparable across companies and can be only perceived as a crude proxy. Despite the fact that this control measure is noisy, it always appears in our specifications with the expected sign. All our results are robust to excluding this variable from the analysis. Since the number of firms covered in Thomson Worldscope dataset is incomplete, to avoid shrinkage of the sample, we assign a value of 0 to any of the international sales or assets variables for which we have missing data. In all regressions where we use these variables, we include an additional (unreported) dummy to indicate if these data are available for the firm. Finally, because international sales and assets are highly correlated, except for the last section, we report the results based on assets. All our results continue to hold if respective sales variables were used instead.

0.15, 0.98, 2.81 and 0.065 in the case of the unconditional sample. These comparisons suggest that our sample is made of larger, more profitable firms that have higher average leverage ratio and higher average market-to-book than the overall population of firms. Furthermore, the firms in our sample tend to have somewhat less tangible assets. The median Moody's rating of the firms in our sample is A2 while the median standard deviation of analyst earning forecasts is 0.06. We use these break points whenever we refer to the sample splits based on the above/below median rating and standard deviations of analyst forecasts.

The average firm in our sample has only a minor share of its bonds placed internationally. However, the median (mean) value of international bonds as a share over all bonds outstanding is 22% (33%) for the firms that had at least one international issue. This suggests that, while only a fraction of firms select to issue internationally, the firms that are active in the market of international bond issues take part in it extensively.

The descriptive statistics show that international bondownership (as well as bank lending from international banks) is higher in the firms that issue bonds internationally than in those which only issue domestically. Also, the bonds issued internationally tend to be larger in size and carry a lower yield than the domestic issues. However, controlling for the characteristics of the firm and bonds themselves, we find that yields on international bonds are on average 20bp larger than those on domestic bonds.

In comparison to domestic institutional investors, international institutional investors hold substantially more international issues of US firms, as a fraction of their portfolio, and tend to invest in more levered firms, worse rated firms, larger and more profitable firms. The international institutional investors are also less diversified across different US firms.

4. Determinants of International Demand

We start by analyzing the determinants of international institutional investor demand of bonds issued by US firms. We want to see whether the demand of international investors is affected by the fraction owned by their peers in the firm, or is rather driven by the fraction held by the US bondholders who have superior advantages of monitoring the firm. We are primarily concerned with the decisions of the firms to issue new bonds. Thus, we will mostly focus the analysis on the newly issued bonds, although we will also provide evidence on the international investor demand for outstanding bonds.

4.1 Individual Demand of International Investors for Newly Issued Bonds

An investor who considers whether to buy a newly issued bond can classify the existing prior bondownership of the issuing firm into (1) its own prior ownership, (2) ownership by US

investors (domestic bondownership), (3) ownership by the peers of the institutional investor (peer bondownership) and (4) ownership by other international investors. For every newly issued bond of US firms in our sample and each managing firm family, we construct these ownership variables. We then study how they affect the demand of each international managing firm family, controlling for the other issuing firm- and institutional investor-specific characteristics. In particular, we estimate:

$$O_{ikjt} = \beta_0 + \beta_1 IO_{ijt-1} + \beta_2 IL_{ijt-1} + \beta_3 x_{jt-1} + \beta_4 z_{ikt-1} + \varepsilon_{ikjt} \quad , \quad (1)$$

where the dependent variable O_{ikjt} is the fraction of the issue size of the bond k of the i th firm, purchased by the j th institutional investor in quarter t .⁷

We focus on IO_{ijt-1} ,⁸ which is the vector of three explanatory ownership variables: (1) domestic bondholding, (2) holding by peers and (3) previous bondownership by the same institutional investor, estimated as the fraction of the bonds held by j th institutional investor in firm i out of all bonds outstanding of firm i in quarter $t-1$.⁹ All institutional investors that belong to an international fund family are considered international in this analysis, regardless of whether they are located in the US or in the foreign country.

We control for domestic and international bank lending. IL_{ijt-1} is the vector of bank lending shares disaggregated into (1) domestic bank lending (by US banks) and (2) bank lending from the same country where international managing firm is located.

We also control for the characteristics of the managing firm as well as the characteristics of the issuer of the new bond. x_{jt-1} is a vector of managing firm-specific control variables. They are: the size of the managing firm, its ownership of international issues, degree of diversification as well as its investment profile. We define the investment profile in terms of the characteristics of the issuers in which managing firm holds bonds. For this purpose, we use five variables, as defined above: managing firm rating profile, leverage profile, M/B profile, issuer size profile and ROA profile. We also include a set of firm-specific control variables z_{ikt-1} such as: size, leverage, tangibility, ROA, market-to-book ratio and share of

⁷ Ideally, quarter t corresponds to the quarter in which the bond is issued. However, since there is some lag in recording information about new issues, we record the purchases of a new issue on the first date when the information about the holdings of the bond is provided in Lipper database. We exclude those observations where the first recorded purchase date for the bond is later than one year after the offering date of a bond as reported in Mergent. Our analysis is unaffected if we restrict the sample to the bond issues for which information in Lipper database is available at the quarter in which the bond is issued.

⁸ We also estimate domestic and peer bondownership in IO_{ijt-1} differently. Instead of using the fractions of bondownership, we calculated the number of domestic and peer investors who hold bonds of firm i as a fraction of total number of respectively domestic and peer investors that are active in the US market. That is, for instance, we replace peer bondownership in firm i by the fraction of peers *in the market* that own bonds in firm i . The results using these alternative definitions of domestic and peer bondownership do not differ from the others and therefore we do not report them in the interest of brevity.

⁹ The complement to the sum of the ownership by these three groups is the ownership by the international investors that are non peers to the managing family j .

assets located in country of manager j at $t-1$. Finally, we include dummies for year and rating fixed effects¹⁰. Following Petersen (2008), we cluster the standard errors at the managing firm level.

We note that institutional reasons or their specific investment profiles may prevent some international institutions from investing into certain types of firms/bonds. In order to deal with this self-selection in the demand, we employ a tobit model (Amemiya, 1984). For each new bond issue, potential investors are considered to be the whole universe of international institutional investors that have non-zero holdings in the US bonds the period following the issue. We assume that they make a decision not to buy the newly issued bond if no purchase is recorded in the database.

The results are reported in Table 2. In Panel A, we report the demand of international investors of newly issued international bonds, while in Panel B, we report the demand of international investors of newly issued domestic bonds. The results are similar in nature for both international and domestic bonds. They show that an average international investor will demand more bonds if the issuing firm already has a significant bondownership by its peers. In particular, one standard deviation higher peer ownership is related to a 1.5% larger purchase in terms of face value of the bond, where average international investor owns 0.9% of the bonds of the firm, i.e. one standard deviation higher peer ownership increases the demand by 167% for an average international investor. This supports the peer confidence hypothesis.

We also find a smaller but still significant support for the monitoring hypothesis which predicts a positive influence of domestic ownership. Indeed, one standard deviation higher domestic ownership is related to a 0.43% larger purchase in terms of face value of the bond. That is, one standard deviation higher domestic ownership is related to a 47% higher demand for an average international investor. Previous ownership by the investor itself matters in a similar magnitude as peer ownership. We find no direct influence of assets located in investor's country on investor's demand. Such finding casts doubt on the explanation that the peer effect comes from a spurious correlation in that investors only demand firm's bonds if the firm has assets in their country.

Also, it is important to note that the decision to invest in the bonds of the US firm is positively affected by the firm having already borrowed from banks of the same country as the international institutional investor ("peer banks"). However, most of the significance comes from the cases in which there is no peer bond holding in the firm. This suggests that

¹⁰ We do not include the offering yield spread as a control variable as this would significantly shrink the sample (by up to 30%) since the offering yield spread is not available for all issues in our sample. However, unreported results containing such a variable are consistent with the reported ones.

borrowing from peer banks acts as a substitute to direct bondownership by peer investors. Borrowing from peer banks seems to matter more than the degree of domestic borrowing.

Although we do not report the coefficients explicitly, it is interesting to note how the demand is influenced by investor-specific characteristics. For example, the bigger is the institutional investor, the higher is its demand for average bond issue of US firms. Demand is also negatively related to how much the investor already holds of international bonds as well to how much it holds of the bonds issued by firms with high leverage. These are consistent with the investment firm being risk averse. Also, asset managers who mostly invest in the bonds issued by growth firms, more profitable firms, and better rated firms, tend to have a lower demand for an average international bond issue. Finally, the results remain valid after controlling for country-fixed effects, i.e. higher propensity of the managers from certain countries to participate in the US securities market.

A potential criticism of our results is that we do not capture the peer effect but rather an unobserved taste from peer investors for similar securities. We note that such unobserved taste is rather captured by the prior ownership of investor itself as it identifies all relevant unobserved categorical tastes (e.g. at a country level or style level) as well as the unobserved reasons why investor deviates from them. Moreover, such country-specific unobserved taste for the securities of the firm should not vary much over time. Thus, as additional robustness check, we add the first recorded share of ownership of the investors that come from country of investor j as an additional explanatory variable to capture this unobserved taste. Although this variable is significant, the time-varying peer effect remains statistically significant as well.

Next, we split the sample according to various firm and bond characteristics and investigate whether the impact of peer ownership differs depending on these characteristics. We perform a chi-squared test for the equality of marginal effects of ownership by peers variable, based on the seemingly unrelated estimation for the pairs of the two models (above and below median for each of the characteristic with marginal effects estimated at means of variables in each sample). We report the results in Table 3.

As expected, in line with the peer confidence hypothesis, the results show that the impact of peer ownership on demand is stronger if the bond has a shorter maturity, the firm has higher deviation of analyst earning forecasts¹¹ and does not have covenants in place. Contrary to our expectations, we do not find significant difference in the influence of peer ownership in the subsamples constructed in terms of ratings. Overall, these findings confirm our intuition that peer ownership reduces the sensitivity to risk of the investor, making it

¹¹ This relates to previous findings (Datta and Dhillon, 1993, Hotchkiss and Ronen, 2002) which show that bondholders react to analyst forecast and analyst forecast errors in the same way at the equityholders.

more willing to invest in the bond and therefore increasing its trust in it. Interestingly, peer ownership is also more important in the cases where the firm has more than average bank lending coming from US banks. Finally, we find that peer ownership is more important when the firm has a higher proportion of assets located in investor’s country.

If the peer confidence hypothesis holds and firms make rational decisions, we expect them to issue in the countries where the effect of peer bondownership creates more additional demand from other investors. So, for a bond k we expect the peer effect to be strongest for the investors that are located in the country whose investors purchased the largest share of this bond. We indeed find that peer bondownership is more important for the investors that come from this country than investors that are located in other countries.

We also find some support for the “trust” interpretation. We use World Value Survey’s data to assign a proxy how trusting individuals are from a certain country. In particular, as a trust proxy of the country we use the percentage of respondents that agreed to the statement “Most people can be trusted”. We find evidence that peer effect is more important for the investors that come from the countries with higher values of trust proxy. Moreover, in line with the need for higher trust in lesser known securities, we find that peer effect is more important for the first recorded bond issue of the firm in the dataset as compared to the last recorded bond issue of the firm in the dataset.

Finally, we investigate whether the impact of domestic ownership differs across different firm and bond specific characteristics. The influence of domestic bondownership for the demand of international investors is more important for bonds of smaller issue size, with no covenants, higher ratings and bonds issued by firms with higher deviation of analyst earning forecasts. Domestic ownership is also more important if the managing firm j already has a sizable bond stake in the issuer, i.e. it is more exposed, as well as if there is higher peer and domestic ownership in the issuer. These results are largely consistent with the monitoring hypothesis, the only exceptions being the positive relationship between international demand and domestic bondownership for firms with better rated bonds as well as the stronger influence of domestic bondownership when there is higher bondownership by peers.

4.2 Aggregate Demand of International Investors for Newly Issued Bonds

Even if we put our best effort to control for the institutional investor-specific effects in the previous regressions, these might have not been fully controlled for. Therefore, as a final test, we aggregate across all international institutional investors, who were previously analyzed separately, assessing the overall demand by international institutional investors of a specific newly issued bond. We regress international holding in the newly issued domestic and

international bonds on the international bondownership in the firm and a set of control variables:

$$IO_{ikt} = \beta_0 + \beta_1 IO_{it-1} + \beta_2 IL_{it-1} + \beta_3 x_{ikt-1} + \varepsilon_{ikt} , \quad (2)$$

where the dependent variable IO_{ikt} is the fraction of the issue size of the bond k of the i th firm, purchased by all international managing firm families in quarter t . Again, tobit regressions are used to deal with self-selection issues.

The results are reported in Table 4. We find again that previous international bondownership in the firm is related to higher demand of a specific bond. One standard deviation higher international bondownership in a firm is related to 9.8% higher total purchase by international investors of the new bond issue. This is economically relevant as on average international investors own 18.2% of the US corporate bonds in our sample.

Also, international bank lending significantly contributes to the international bond demand, albeit to a lesser magnitude. International investors have higher demand for larger, lower rated, less tangible firms with more covenants. The subsample analysis in the previous section showed that peer ownership is more important for firms that have higher deviation of analyst forecasts and lower (or no) ratings. So, although international investors seem to have appetite for more risky bonds, they are looking for more peer ownership in such firms. Finally, international investors are more inclined to buy a bond if it is issued internationally.

Overall, these results show a direct impact of peer ownership on bondholder demand, both in the case of domestic and international issues. This supports the peer confidence hypothesis. It is interesting to note that the presence of a previous borrowing relationship with international banks does not remove the importance of peer ownership. This is contrary to the common view that banks provide an alternative monitoring that also helps the bondholders. The fact that bank debt tends to be senior to bonds may help explain the lack of reliance of bondholders on bank's monitoring.

4.3 Individual Demand of International Investors for Outstanding Bonds

The previous results were based on the newly issued bonds. We now perform a similar analysis for the outstanding bonds (i.e., those that are not newly issued) to confirm that international investor reliance on peers holds universally for US corporate bonds. In contrast to Table 2, here the results are estimated at a firm level and combine both international and domestic bonds. To make the sample size tractable, we only include those observations where international managing firms have a non-zero bondholding in a certain firm. This implies that here we are not fully controlling for self-selection of some institutional investors

to invest in certain types of firms. Nevertheless, this analysis can provide supporting evidence that peer ownership remains an important factor in the secondary market as well.

We estimate a panel specification and report the results in Table 5. We use three specifications for our panel: fixed effects regression, Fama-MacBeth regression and Arellano-Bond GMM estimator of dynamic panel data model. For the latter we reduce the sample size to exclude the manager-issuer observations with the time gaps of bondholdings. In all the three specifications we find that peer bondownership is positively related to the demand of international investors. Also, the economic size of the effect is significant – one standard deviation higher peer bondownership is related to 0.04-0.06% higher investment by an average international managing firm in terms of the outstanding bonds of the firm. This is a 20-30% rise over the median bondownership of international investor in US firms.

On the contrary, the evidence for the influence of domestic bondownership on international bonds is less conclusive. Fixed effects regression does not find evidence that international demand is related to domestic bondownership, Fama-MacBeth estimation suggests a negative relationship while it is positive based on Arellano-Bond model. Acknowledging that Fama-MacBeth estimates might be biased in the presence of the manager-issuer-specific fixed effects, we conclude that we cannot reject the monitoring hypothesis. Also, as before, we find that international investors are more inclined to hold bonds of the firm if it already has lending relationships with US banks. The evidence regarding the internationally located assets is mixed. The effect is negative in the fixed effects specification but not significant in the Fama-MacBeth and Arellano-Bond estimations.

4.4 International Investors and Ex-post Default of Bonds

Before we proceed to the yield analysis, we check whether our assumption that domestic bondholders have an advantage in screening and monitoring holds in our sample. We examine this by testing whether the presence of international (domestic) bondholders was higher (lower) in the bonds that eventually defaulted. The rationale of this test is that, if domestic bondholders are better able to screen firms or monitor them, we expect them, all else equal, to be mostly invested in the firms which will not eventually default. The bonds of such firms will be mostly held by international investors. We therefore estimate:

$$Default_{ikt} = \beta_0 + \beta_1 IO_{it-1} + \beta_2 IL_{it-1} + \beta_3 z_{ikt-1} + \varepsilon_{ikt}, \quad (3)$$

where the dependent variable is equal to 1 if the bond k of firm i defaults over the quarter t while it is equal to 0 if the bond does not default over the quarter t . *Default* is considered any default (bankruptcy, interest, covenant, principal) as reported in the Mergent database. IO_{it-1} is the fraction of the bonds of i th firm in quarter t , held by all international managing

firm families, while IL_{it-1} is the fraction of banklending to i th firm in quarter t , provided by the international banks. Z_{it-1} are the issue and firm-level characteristics as defined above and include: yield spread¹², Moody’s rating, maturity, issue size, tangibility, ROA, leverage, market-to-book, size of the firm and share of assets located abroad. The regressions include fixed offering year and rating effects and use heteroskedasticity robust standard errors.

The results are reported in Table 6. We provide three specifications. In the first specification, the whole sample of bonds is used. In the second and third specifications, we pick one bond per firm. We focus on the least traded bond in the second specification and the bond with longest maturity in the third specification. The least traded bond is defined as follows. For every active bond in period t , we calculate the number of funds in Lipper database that changed the holding in that bond from period $t-1$ to period t . For every firm in period t , we then choose the bond for which this number was smallest across all bonds of the firm and treat it as the least traded bond.

The results show that international (domestic) bondownership is positively (negatively) related to the probability of default. This confirms a lower monitoring/screening ability of foreign bondowners. The economic significance of the results is surprising. One standard deviation higher international bondownership is related to a 4-10% (depending on the specification) higher probability of default. The signs of all the control variables are as expected. The probability of default is higher for the firms that are smaller, have smaller share of tangible assets, lower profitability and higher leverage, are less well rated and carry a larger yield spread. We however find no effect of assets being located abroad or in the US on the probability of default.

5. Peer Ownership and Offering Yield Spreads of Bonds

We now move on to study the impact of international bondownership on bond prices in the primary bond market. As we argued above, the peer confidence hypothesis posits that the offering yield spreads for international bonds is negatively related to the firm’s international bondownership before the issuance. The reverse should hold for domestic bonds. The monitoring hypothesis would instead posit a positive relationship between the offering yield spreads of *both* international as well as domestic bonds and the fraction of international bondowners before the issuance.

The analysis is complicated by two self-selection concerns. First, our estimates are conditional on the firm’s decision to obtain financing in a certain period. Second, the offering yield of the international issue is also conditional on the firm having chosen to issue

¹² Excluding yield spread from the regressions does not affect our results.

internationally as opposed to domestically. However, the latter is directly related to the difference in expected yields in the two markets. We address these two issues sequentially.

To address the sample selection – i.e., the fact that the sample is observable only if the firm issued bonds altogether – we employ a Heckman (1979) two stage procedure. For each quarter and every firm in the Compustat dataset, we estimate the probit model that a firm issues bonds in a certain quarter and extract an inverse Mills ratio as derived from:

$$\text{Bond Issue}_{it} = \delta_0 + \delta_1 z_{it-1} + \eta_{it}, \quad (4)$$

where the dependent variable takes the value of one if a Compustat firm i issues bonds in quarter t and zero otherwise and z_{it-1} is a vector of standard firm-specific control variables: leverage, ROA, market-to-book ratio, asset size as well as time fixed effects.

To address the second issue – i.e., the fact that the offering yield is conditional on the firm having chosen to issue internationally as opposed to domestically and the latter being related to the difference in expected yields in the two markets – we employ an extension to the standard endogenous switching regression model of Lee (1978). The extension accounts for the fact that we use overlapping samples – i.e. some firms can be active issuers in both markets and therefore for them both international and domestic yields are observable¹³.

We start by relating the firm’s decision to issue domestically or internationally, conditional on the firm issuing bonds, to the difference between the imputed yield spreads at which the firm can place its bond in the domestic and international markets. We control for other issuing motives, such as hedging needs and tax arbitrage – as proxied by the fraction of firm’s turnover that is generated internationally.

In particular, for every quarter, we calculate the percentage of new bonds in dollar terms that the firm places internationally. We relate it to the offering yield that the firm can get by issuing internationally and to the yield it would be getting by issuing domestically, as well as the fraction of international sales¹⁴. We estimate the following system:

$$\begin{cases} \text{Perc.Int.Bonds}_{it} = \delta_0 + \delta_1 (\text{Off. yield}_{it}^{\text{int}} - \text{Off. yield}_{it}^{\text{dom}}) + \delta_2 \text{Int.Sales}_{it-1} + \delta_3 \lambda_{it} + \eta_{it} \\ \text{Off. yield}_{it}^{\text{int}} = \beta_0^{\text{int}} + \beta_1^{\text{int}} \text{IO}_{it-1} + \beta_2^{\text{int}} \text{IL}_{it-1} + \beta_3^{\text{int}} z_{it-1} + \varepsilon_{it}^{\text{int}} \\ \text{Off. yield}_{it}^{\text{dom}} = \beta_0^{\text{dom}} + \beta_1^{\text{dom}} \text{IO}_{it-1} + \beta_2^{\text{dom}} \text{IL}_{it-1} + \beta_3^{\text{dom}} z_{it-1} + \varepsilon_{it}^{\text{dom}} \end{cases}, \quad (5)$$

¹³ Alternatively, we can follow Hotchkiss (1991) and estimate the switching regression model with unknown sample selection. In such a model, the sample separation is kept but the threshold is determined statistically from within the sample. We find that the threshold of percentage of international issues that maximizes the likelihood function specified in Hotchkiss (1991) is 0. This means that, contrary to (5) which defines an issuer both as domestic and international if it issues in both markets, in this specification the firm should be considered as international issuer if it issues at least some of its bonds internationally, and domestic issuer if it issues only domestically. The estimation of switching regression model with the sample selection at 0 would provide very similar results to the estimation of (5), so in the interest of brevity, we do not report them.

¹⁴ No results change if we use share of international assets in the first stage, rather than share of international sales. These two variables are, however, highly correlated.

where ‘Percentage of international bonds’ is the fraction of the bonds that the firm i issues internationally over the quarter t . The offering yield is estimated as the largest offering yield spread for the firm over the quarter (estimated separately for international and domestic bonds if the firm issues both). Alternatively, we estimate the offering yield spread as the weighted average of the offering yield spreads over the quarter, or the offering yield spread on the bond with the longest maturity. Our results are consistent in all the specifications.

The other variables are defined as before and are evaluated at the quarter before the issuance takes place. *Int. Sales* is the fraction of firm’s revenues that are generated abroad, z_{it-1} is a set of standard bond- and firm-specific control variables: availability of covenants, maturity, tangibility, leverage, ROA, market-to-book ratio, asset size, share of assets located abroad, total amount of bonds issued over the quarter. Inverse Mills ratio from (4) is denoted by λ_{it} . The estimations are based on the issue-level observations. The data are collected from the SDC database as it also includes private issues, less well covered by Mergent. The regressions include fixed year and rating effects. We bootstrap the standard errors.

We perform the analysis for the overall sample as well as two one-way splits. First, we split the sample on the basis of the the dispersion of analyst earnings forecasts. Later, we split the sample on the basis of the highest rating of the firm’s bonds.

We first describe the implications for offering yield spreads and postpone the discussion of the firm’s decision to issue to the next section. The results in Table 7 Panel A show that the yield spread for international issues is lower in the presence of prior international bondownership. One standard deviation higher international ownership is related to a 25.1bp lower offering yield spread, where the average yield spread in the sample is 72.4bp. The results are driven by the bondownership of funds located outside of the US and are strongest for the bonds issued by firms with high dispersion of analysts and issuers with lower ratings. One standard deviation higher fraction of international bondownership is related to a 40.2 (69.40) basis points lower offering yield for the bonds of the firms with high analyst dispersion (lower rated bonds).

These results are in line with the peer confidence hypothesis, while they do not support the monitoring hypothesis. It is interesting to note that the presence of a prior international borrowing position with international banks is positive, where significant. This suggests that bank lenders do not provide complimentary trust in addition to bond lenders in the mind of the bondholders. Also, larger share of firm’s international assets raises the issuing yield, although this is also true for the yields of domestic bonds. All the other control variables, where statistically significant, have the signs as expected.

As for the offering yield spreads of domestic issues, unreported results show that the yield spread is higher in the presence of prior international bondownership. The results are significant at 5% level and are driven by international investors located within the US. One standard deviation higher international ownership is related to a 15.6bp higher offering yield spreads, where the average yield spread in the sample is 100.6bp.

As a final test, we directly compare international and domestic offering yield spreads for the firms that issue *both* at home and abroad over the quarter. We follow the Heckman two-stage procedure to control for the fact that only some firms choose to actively participate in both international and domestic bond markets. As in equation (4), for each quarter and every firm in the Compustat dataset, we first estimate the probability that a given firm will issue both international and domestic bonds over the quarter. The dependent variable is equal to one if firm i issues both international and domestic bonds and zero if it issues only domestic bonds, only international bonds or does not issue any bonds over the period. The main explanatory variables are: international sales, tangibility, ROA, leverage, market-to-book and size of the firm. We use this model to retrieve the inverse Mills ratios and use them in the following estimation at a firm-quarter level:

$$Yield\ spread_{it}^{int} - Yield\ spread_{it}^{dom} = \beta_0 + \beta_1 IO_{it-1} + \beta_2 IL_{it-1} + \beta_3 \lambda_{it} + \beta_4 z_{it-1} + \varepsilon_{it}, \quad (6)$$

where the dependent variable is the actual difference between the spreads of the offering yields of international and domestic bonds.

For each quarter t and each firm i that issued both domestically and internationally over the quarter we estimate the difference between the yield spreads at which the firm raised debt in the international and domestic markets over the quarter. We use two methods to estimate this difference – matching the bonds and using the weighted averages of offering yield spreads. First, similar to Bharath (2002), for each firm in each quarter, we match new international and domestic bond issues by rating, availability of covenants and closest maturity. From all the matched pairs, we use the yield spread difference of the matched pair with longest maturity as a representative yield spread for a firm in each quarter in that market.

As a robustness check, we estimate the difference as the difference between weighted averages of the yields in international and domestic markets. We weigh yields spreads by the sizes of the bond issue. We rely on the method of matching the bonds for the interpretation of the results as bond pricing is highly nonlinear in the characteristics of the bonds, so our estimates might be biased for the weighted average method.

The vector Z_{it-1} includes firm-specific characteristics such as tangibility, ROA, leverage market-to-book ratio, size of the firm, share of assets located abroad, evaluated at the quarter before the issuance takes place. Our main variables IO_{it-1} and IL_{it-1} are defined as before. λ_{it} denotes the inverse Mills ratio based on the first stage probit for the probability that a Compustat firm issues both domestically and internationally over the quarter. The regressions include fixed offering year and rating effects. Following Petersen (2008), we cluster standard errors at the firm level.

The results are reported in Panel B of Table 7. We provide results only for the overall sample, as the sample size is not big enough to be confident about the results in the sample splits. We find that prior international bondownership is negatively related to the difference of yields that the firm pays in international and domestic primary markets. One standard deviation higher foreign ownership (Overseas part) is related to a lower difference between offering yield spreads of the order of 49.6bp. This is substantial in economic terms considering that the average difference in yields between matched bonds in the sample is 37.3bp. Although our results are stronger for the matched bonds, the main result still holds for the difference between the weighted average offering yield spreads of international and domestic bonds.

These results can be summarized in two statements. First, international bondownership reduces the cost of borrowing abroad. Second, international bondownership reduces the gap between domestic and foreign yields of the same firm. The increase in domestic yields due to the foreign ownership is not enough to offset the benefits that accrue to the international yields. Such evidence in favour of market segmentation provides a starting point to analyze the firm's issuance decision.

6. Peer Ownership and the Decision to Issue Internationally

We now turn to study how international bondownership affects the firm's decision to issue internationally (H3). As we argued before, the peer confidence hypothesis posits that firms will be more inclined to issue abroad if they have a higher fraction of international bondholding. In contrast, the monitoring hypothesis does not expect any or predicts negative relationship between the fraction of international bondownership and international issuance

We start by studying the influence of international bondholding on the probability to issue internationally from the model (5). The results, reported in Column A of Table 8, show a positive relation between the fraction of international bondownership and the choice to issue internationally. One standard deviation higher foreign bondownership is related to a 2.1% higher probability of issuing at least one international bond over the quarter. The effect

is relatively high considering that the average unconditional frequency of issuing at least one bond internationally over the quarter is around 18%.

Our findings are also consistent with the previous literature showing that international sales and international assets contribute positively to the probability of international financing. One standard deviation higher international sales is related to 4.5% higher probability of issuing internationally¹⁵. The effect of international assets is similar. Prior bank loans from foreign banks have a strong positive effect on the probability to issue bonds abroad. The economic effect is similar to that of the previous international bond ownership. The fact that these variables come significant also indicates that the decision of bond issuance location is not solely driven by the underwriter business concerns, that are not related to the interests of the issuer. Moreover, we reconfirm the findings of Siegfried, Simeonova and Vespro (2007) that larger firms and firms with higher leverage have higher propensity for international issues.

Data constraints prevent us from getting general results on whether firms issue more in countries from where investors that already have a stake in the bonds of the issuing firm come. However, we can restrict our attention to three main international currencies¹⁶: euro, Japanese yen and British pound. That is, we assume that market is somewhat segmented across different currency areas – e.g. it is easier to purchase euro-denominated bond for an investor from euro area, compared to other investors.

For each of those currencies, we then test the probability that a firm issues at least one bond in that currency over the quarter:

$$\text{Bond Issue Choice}_{it}^c = \beta_0^c + \beta_1^c IO_{it-1}^c + \beta_2^c IL_{it-1}^c + \beta_3^c z_{it-1}^c + \beta_4^c \lambda_{it} + \varepsilon_{it}^c, \quad (7)$$

where the dependent variable is a dummy taking the value of 1 if the firm, which issues bonds in quarter t , issues at least one bond in currency c and 0 if issues no bonds in currency c over the quarter. IO_{it-1}^c is the fraction of the bonds of a firm i in quarter t , held by all managing firm families that come from currency area c . Similarly, IL_{it-1}^c is the fraction of banklending to i th firm in quarter t by the banks that come from currency area c . \mathcal{L}_{it-1}^c are usual issue and firm-level characteristics and include: share of sales in currency area c , availability of covenants, maturity, issue size, tangibility, ROA, leverage, market-to-book, size of the firm and total amount of bonds issued over the quarter. For the estimation of sales in currency area c , “currency area” is considered to be the broadest region that

¹⁵ We also perform a robustness check that takes care of the currency hedging effect by limiting our sample to the issues in US dollars. The effect of previous international bondownership continues to hold and is in fact stronger.

¹⁶ Chosen by frequency of denomination in our sample. We tried including other currencies, however, the power was very low. For example, we ended up with just 73 firm-quarter observations of issues in Swiss franc, the fourth most frequent currency.

geographically includes at least one member of the currency area. The inverse Mills ratio from (6) is denoted by λ_{it} . The regressions include fixed offering year and rating effects. Following Petersen (2008), we cluster standard errors at the firm level.

The results are reported in Columns B-D of Table 8. They show that international bondownership is significantly related to the decision to issue in (at least) two major currencies: euro and yen. These are also the most popular non-dollar denominations in our sample, so we have the most power for our tests. For these two currency areas we also reconfirm the general currency hedging result found in previous literature. We find that having more income generated in the currency area increases the probability that the firm will issue bonds in that currency. Also, the share of international lenders from Japan is related to more bond issues in yen. If we replace the variable that proxies for the sales in a currency area with a variable that proxies for assets in a currency area, only international bondownership in euro area remains significantly related to the decision to issue in this currency. The assets in the respective currency area remain good predictors of the decision to issue in those currencies.

Although being only indicative, these findings further support the peer confidence hypothesis. They are in line with the intuition that firms pay attention to their international clientele and issue in the countries of highest bondownership concentration. The same conclusion can also be drawn from our previous findings that there is a general relationship between positive international bondownership and the choice to issue internationally as well as the findings that the demand of international institutional investors is primarily driven by the peers from the same country.

7. Discussion: Limits to Peer Effects

The results up to now imply polar outcomes in the bond ownership. Since peer effect would multiply itself over time, the firms would be fully owned by the investors that come from a single country. This would lead the firm to issue bonds either in that country or in the countries where it has its operations and pursues the matching of cash flows. However, on average we do not observe such concentration of bondholders across firms. The combined fraction of international bondownership in the average firm has stabilized in the range of 15%-20% since 2002 and although firms with pure domestic or international bondownership exist, they are rare in the sample. We will first discuss what limits international bondownership in the firm and will then explore what originates international ownership in the first place.

We argue that the reconciliation between the findings lies in the non-linear influence of the monitoring effect. At very high levels of domestic ownership, the marginal domestic investor does not provide additional monitoring benefit. However, beyond a certain threshold of international ownership, the effect of lower monitoring by fewer domestic investors might dominate the beneficial effects of peer ownership and determine an overall higher cost of financing. To empirically test this hypothesis, we take a three-pronged approach.

First, we look at the possibility that international bondownership has non-linear effect on yields. We find that most of the power in explaining the offering yields in Table 7 lies with firms characterized by low levels of international bondownership (below 15%). We obtain this result by a piecewise linear estimation of specification (5) in which we directly check for possible nonlinearities effects from international ownership by funds located outside of US (Overseas part). The selected breakpoint (15%) is chosen to produce the lowest mean squared errors for the piecewise linear regression in the overall sample.

The results show that there is no additional effect of foreign bondownership on the offering yields over 15% of international bondownership threshold. This suggests that there might be limits to the benefits of foreign bondownership and that most advantages can be reaped by the firms that are not widely held by foreigners. In other words, the monitoring effect is not important for high levels of domestic bondholding but then starts compensating the peer effect when domestic bondholding drops to levels at around 85%.

Second, we look at the differences in the individual investor demand by performing a subsample split of the individual investor demand of international bonds as in Table 3, splitting the firms in those that have a share of domestic bondholding above 85% and those with domestic ownership at less than 85%. We find that the international investor demand is unaffected by the level of domestic bondholding for shares higher than 85% while the effect is statistically significant (z statistic of 7.32) for the shares lower than 85%. The difference between the marginal effects is also statistically significant with chi-square value of 48.83.

Finally, we look at the contemporaneous relationship between international ownership and bond yield spreads in the secondary market and check whether there is a difference in this relationship between the firms with high and low international bondownership. Given the lack of good quality data on the market price of internationally traded bonds, we are only able to analyze the yields on the domestically issued bonds as reported in Bloomberg. We split the sample at the median international bondownership value of 15% and for each of the subsamples estimate the following simultaneous equation specification:

$$\begin{cases} \Delta \text{Yield spread}_{it} = \beta_0^1 + \beta_1^1 \Delta IO_{it} + \beta_2^1 \Delta IL_{it} + \beta_3^1 z_{it} + \varepsilon_{it}^1 \\ \Delta IO_{it} = \beta_0^2 + \beta_1^2 \Delta \text{Yield Spread}_{it} + \beta_2^2 \Delta IL_{it} + \beta_3^2 z_{it} + \varepsilon_{it}^2 \end{cases}, \quad (8)$$

where $\Delta Yield Spread_{it}$ is the change in the option adjusted spread of firm i over the quarter t . If firm has multiple bonds outstanding in quarter t , we pick the one with the longest remaining maturity¹⁷. ΔIO_{it} denotes the change in the fraction of international ownership in firm i by international investors over quarter t . Similarly, ΔIL_{it} denotes the change in fraction of lending by international banks in the i th firm over quarter t . z_{it} is a set of standard bond, firm and market-specific control variables: change in issue size of the bond, firm size, leverage, market-to-book ratio, ROA, tangibility, share of assets located abroad, changes in interest rates in the market and changes in aggregate international investor bondholding in the US. We also include a dummy indicating a downgrade to a junk (i.e. non-investment grade) status. Since some institutional investors are limited in how much they can invest in non-investment grade bonds¹⁸, in the presence of a downgrade below Baa, selling pressure would become an additional explanatory factor.

We use the change in issue size and the change in market rates as identifying restrictions for the change in yield spread while we use the change in aggregate international investor bondholding of US firms as additional determinant for the change of international bond ownership. A change in the market yields is unlikely to affect international ownership in a specific firm while the change in aggregate international investor holding is unlikely to lead to the yield change in a specific firm. Repayment of a particular bond should not change the interest of international investors in it. We match bonds by 9-digit CUSIPs. We use the Mergent sample for the analysis as it reports 9-digit CUSIP more frequently than SDC.

The results are reported in Table 9. They show that an increase in international bondownership is associated with higher bond yields in domestic bonds as expected by both monitoring and peer confidence hypotheses. An increase of international ownership by one standard deviation raises the bond yield by 89 basis points. The effect is sizable if compared to an average yield spread in the sample of 347.2bp. However, we find that the pricing effect of international bondholders is only statistically significant if the international bondownership in the firm is larger than 15%, i.e. when the presence of domestic bondholders is more important according to both monitoring and peer confidence hypotheses.

These three pieces of evidence support the notion that the positive effects from international bondownership are limited. Although some investment by international investors adds to the confidence of their peers, a higher level of international bondownership hampers the ability of institutional investors to adequately monitor the firm and this offsets the positive peer effect.

¹⁷ The results are not affected if we pick the least traded bond as defined in Section 4.4.

¹⁸ For example, according to the requirements of National Association of Insurance Commissioners, insurance firms are only allowed to hold up to 20% of the non-investment grade bonds as a percentage of their assets.

At the other extreme, a potential concern is how a US firm attracts its first international investors. We claim that the link is provided by the international investors that are located in the US. In the unreported results, we find that a change in the fraction of international bondholders located in the US leads to a change in the fraction of international investors outside of US.

Even more importantly, we find that the firm is more inclined to issue its first *international* bond (as provided in the SDC database) if it already has international bondholders in its *domestic* bonds, although this positive relationship only holds for lower levels of international bondownership. Interestingly, we find that no firm that has more than 15% international bondownership in its domestic bonds enters the international bond for the first time.

Conclusion

We study whether the decision of an international investor to acquire bonds of the US firm is influenced by the existing bondownership of its peer investors. We use this relationship to analyze whether international bond investor tastes have pricing implications and how they affect the firm's choice of bond placement location. We focus on the US bond issuers in the period from 1998 to 2006.

We argue that the trust of international investors in a US corporate bond can come in two ways. International bondholders can either trust the domestic US investors who have advantages in monitoring the firm (monitoring hypothesis), or they can trust the investment decisions of their peer investors (peer confidence hypothesis). We claim that investor location effectively segments the bond market, especially for more opaque issues.

We argue that according the monitoring hypothesis, the share of domestic investors should always have a positive influence on the demand and prices of the bonds, both domestic and international. On the contrary, according to the peer confidence hypothesis, in the presence of segmented bond markets the firm would aim to issue in the countries where it could make most use of the peer trust effect. Provided that the company has a significant share of international investors, it could rely on the additional demand of their peers and thus international bond issues might result in higher prices. We find most support for the latter explanation. We show that the demand by international institutions for US bonds is positively affected by bondownership of their peers. International ownership also increases the yields spreads for the domestic bonds, while it lowers them for new international bond issues. On the other hand, we find that peer effect between international investors has

limited positive effects for US firms and at high levels of international bond ownership, the ability of domestic investors to provide better monitoring also becomes important.

These results have direct implications for the US firms contemplating issuing abroad. They have an incentive to issue more in the countries where the investors that already have a stake in their previously issued bonds are located. Most of our findings are strongest for firms with higher dispersion of analyst earnings forecasts and lower ratings. Although we do not investigate it further, we also find that more opaque firms have a higher tendency to issue internationally and that the incentive is highest after the downgrade of the firm's rating to non-investment grade status. We leave for the further research to analyze whether deteriorating conditions make US firms more inclined to abuse peer effects between institutional investors.

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Appendix. List of Variables

Name of the Variable	Used In	Depend./ Explan.	Description	Source
<i>Bond Ownership Variables</i>				
Share purchased by int. investor	Tables 2-3, 5	Depend.	Fraction of the face value of newly issued bond k of the firm i purchased by managing firm j	Lipper
Share purchased by int. investors	Table 4	Depend.	Fraction of the face value of newly issued bond k of the firm i purchased by managing firm families that have most of their assets registered outside the US	Lipper
Share of dom. investors	Tables 2-3, 5	Explan.	Fraction of the face value of outstanding bonds of the firm i held by managing firm families that have most of their assets registered in the US	Lipper
Share of peers	Tables 2-3, 5	Explan.	Fraction of the face value of outstanding bonds of the firm i held by managing firm families that have most of their assets registered in the same country as managing firm j	Lipper
Share of peers	Table 2	Explan.	First recorded fraction of the face value of outstanding bonds of the firm i held by managing firm families that have most of their assets registered in the same country as managing firm j	Lipper
Previous own ownership	Tables 2-3, 5	Explan.	Fraction of the face value of outstanding bonds of the firm i held by managing firm j	Lipper
Share of int. investors	Table 4	Explan.	Fraction of the face value of outstanding bonds of the firm i held by managing firm families that have most of their assets registered outside of the US	Lipper
Share of int. investors (Overseas)	Table 6-7	Explan.	Fraction of the face value of outstanding bonds of the firm i held by managing firms that are registered outside of the US	Lipper
Share of int. investors (NY)	Table 6-7	Explan.	Fraction of the face value of outstanding bonds of the firm i held by managing firms that are registered within US but are associated with the managing firm families that have most of their assets registered outside of US	Lipper
Share of int. investors from area (Overseas)	Table 8	Explan.	Fraction of the face value of outstanding bonds of the firm i held by managing firms that are registered in currency area c	Lipper
Share of int. investors from area(NY)	Table 8	Explan.	Fraction of the face value of outstanding bonds of the firm i held by managing firms that are registered within US but are associated with the managing firm families that have most of their assets registered in currency area c	Lipper
Change in int. investor own.	Table 9	Depend./ Explan.	Change in fraction of the face value of outstanding bonds of the firm i held by managing firm families that have most of their assets registered outside of the US	Lipper
Change in aggr. int. investor own.	Table 9	Explan.	Change in aggregate international investor ownership of corporate bonds in the US	Treasury
<i>Bank Lending Variables</i>				
Share of dom. lending	Tables 2-3, 5	Explan.	Fraction of the outstanding bank debt of the firm i , lent by banking groups that have ultimate owners registered in the US	LPC
Share of peer bank lending	Tables 2-3, 5	Explan.	Fraction of the outstanding bank debt of the firm i , lent by banking groups that have ultimate owners registered in the same country as managing firm j	LPC
Share of int. lending (Overall)	Tables 4, 6-8	Explan.	Fraction of the outstanding bank debt of the firm i , lent by banking groups that have ultimate owners registered outside of the US	LPC
Share of int. lending (Overseas)	Tables 6-7	Explan.	Fraction of the outstanding bank debt of the firm i , lent by banks that are registered outside of the US	LPC
Share of int. lending (NY)	Tables 6-7	Explan.	Fraction of the outstanding bank debt of the firm i , lent by banks that are registered in the US but have ultimate owner registered outside the US	LPC
Share of int. lending from area (Overall)	Table 8	Explan.	Fraction of the outstanding bank debt of the firm i , lent by banking groups that have ultimate owners registered in the currency area c	LPC
Share of int. lending from area	Table 8	Explan.	Fraction of the outstanding bank debt of the firm i , lent by banks that are registered in the currency area c	LPC

(Overseas) Share of int. lending from area (NY)	Table 8	Explan.	Fraction of the outstanding bank debt of the firm i , lent by banks that are registered in the US but have ultimate owner registered in the currency area c	LPC
Change in int. lending	Tables 9	Explan.	Change in fraction of the outstanding bank debt of the firm i , lent by banking groups that have ultimate owners registered outside of the US	LPC
<i>Yield Variables</i>				
Yield spread	Table 6	Explan.	Option adjusted spread over the Treasury bond of similar maturity, winsorized at 0.1% level	Bloomberg
Change in yield spread	Table 9	Depend./ Explan.	Change in option adjusted spread over the Treasury bond of similar maturity	Bloomberg
Offering yield spread	Table 7, A	Depend.	Number of basis points for bond k over the comparable maturity Treasury bond for fixed rate issues and the number of basis point spread between the coupon rate and the rate of the index off which the coupon is reset for floating rate issues, winsorized at 0.1% level	SDC
Difference between offering yield spreads	Table 7, B	Depend.	Difference between the offering yield spreads on international and domestic bonds for firm i over the quarter t , where the bonds are matched by the ratings, the availability of covenants and closest maturity. Alternatively, the difference is estimated as the difference between weighted averages of the offering yield spreads for international and domestic issues, where weights are determined by the sizes of the issues. Offering yield spreads are calculated as the number of basis points over the comparable maturity Treasury bond for fixed rate issues and the number of basis point spread between the coupon rate and the rate of the index off which the coupon is reset for floating rate issues, winsorized at 0.1% level	SDC
Quality spread in the market	Table 9	Explan.	Difference between Moody's Long term corporate yield averages for Aaa bonds and Baa bonds	Treasury
Credit spread in the market	Table 9	Explan.	Difference between Moody's Long term corporate yield spread for Aaa bonds and 30 year Treasury bond rate	Treasury
30 year Treasury bond rate	Table 9	Explan.	30 year Treasury bond rate	Treasury
<i>Other Bond Characteristics</i>				
Maturity	Tables 2-8	Explan.	Maturity in days until the expiration of bond k	Mergent, SDC
Issue size	Tables 2-6	Explan.	Size of the face value of the bond k at the time of issue, normalized by the asset size of firm i	Mergent, SDC
Total issue size over quarter	Table 7-8	Explan.	Sum of sizes of the face values of the bonds over quarter t , normalized by the asset size of firm i	SDC
Moody rating	Tables 2-8	Explan.	Moody rating of the bond, either used as a dummy for every rating category, or a scale variable from 0 to 21, where 21 refers to Aaa rating	Mergent, SDC
Dummy for rating availability	Tables 2-8	Explan.	Dummy that takes value 1 if rating for the bond is available	Mergent, SDC
Subordination	Tables 2-5	Explan.	Seniority of the bond, estimated on a scale from 0 to 7, where 7 refers to Senior security level	Mergent
Covenants	Tables 2-5	Explan.	Number of bondholder protective covenants in bond k , where the maximum is 21	Mergent
Covenants	Tables 7-8	Explan.	Dummy that takes value 1 if bondholder protective covenants are available in bond k	SDC
Default	Table 6	Depend.	Dummy that takes value 1 if bond k defaults in quarter t , where default includes bankruptcy, as well as default on interest, covenant and principal	Mergent
Bond downgraded to junk	Table 9	Explan.	Dummy that takes value 1 if bond k is downgraded to non-investment grade status in quarter t	Bloomberg
<i>Firm Characteristics</i>				
Tangibility	Tables 2-9	Explan.	=1-data33/data6	Compustat
ROA	Tables 2-9	Explan.	=data13/data6, where data6 is lagged by a year.	Compustat
Leverage	Tables 2-9	Explan.	=(data34+data9)/data6	Compustat
Market to book	Tables 2-9	Explan.	=data199*data25/data11	Compustat

Asset size	Tables 2-9	Explan.	=ln(data6)	Compustat
Share of assets in country	Tables 2-9	Explan.	Assets located in a country, which is considered as broadest region that geographically includes the country of managing firm j	Thomson Worldscope
Share of assets in currency area c	Tables 8	Explan.	Assets located in a currency area, which is considered as broadest region that geographically includes at least one member of currency area c	Thomson Worldscope
Share of sales in currency area c	Table 8	Explan.	Revenues from a currency area, which is considered as broadest region that geographically includes at least one member of currency area c	Thomson Worldscop
Share of assets abroad	Tables 4-7	Explan.	Assets located in foreign countries, taken as a compliment to turnover in the US, which is considered as the broadest region that geographically includes US	Thomson Worldscop
Share of sales abroad	Table 7-8	Explan.	Revenues from foreign countries, taken as a compliment to turnover in the US, which is considered as the broadest region that geographically includes US	Thomson Worldscop
Analyst deviation	Tables 3-8	Explan.	Standard deviation of earnings forecasts by analysts	IBES

Managing Firm Characteristics

Trust in country	Table 3	Explan.	Percentage of respondents from country of managing firm j that agreed to the statement “Most people can be trusted”	World Value Survey Lipper
Managing firm size	Tables 2-3, 5	Explan.	Aggregate face value of bonds that are held by the managing firm j	Lipper
Managing firm own. of int. issues	Tables 2-3, 5	Explan.	Fraction of the international bonds out of all face value of bonds of US firms held by a managing firm j	Lipper
Managing firm concentration	Tables 2-3, 5	Explan.	HHI for the managing firm j , where shares are the portfolio weights of investments into the bonds of different issuers	Lipper
Managing firm rating profile	Tables 2-3, 5	Explan.	Average of ratings of bonds held by managing firm j , weighted by the face values of bonds	Lipper
Managing firm leverage profile	Tables 2-3, 5	Explan.	Average of leverages of issuers, whose bonds are held by managing firm j , weighted by the face values of bonds held by managing firm j	Lipper
Managing firm market to book profile	Tables 2-3, 5	Explan.	Average of market to book ratios of issuers, whose bonds are held by managing firm j , weighted by the face values of bonds held by managing firm j	Lipper
Managing firm issuer size profile	Tables 2-3, 5	Explan.	Average of asset sizes of issuers, whose bonds are held by managing firm j , weighted by the face values of bonds held by managing firm j	Lipper
Managing firm ROA profile	Tables 2-3, 5	Explan.	Average of ROA of issuers, whose bonds are held by managing firm j , weighted by the face values of bonds held by managing firm j	Lipper

Table 1. Descriptive Statistics

This table presents summary statistics for the main variables used in the subsequent analysis. For these statistics we require non-missing information on firm size and international bondownership (a match between Compustat and Lipper).

	Source	Mean	Median	St. Dev.	N
Firm variables					
Asset size (\$m)	Compustat	12,366.6	1,263.1	63,883.7	3184
Tangibility	Compustat	0.900	0.955	0.131	3184
ROA	Compustat	0.106	0.117	0.178	3091
Leverage	Compustat	0.306	0.285	0.185	3180
Market to book ratio	Compustat	17.028	3.156	222.257	3133
Share of assets abroad	Thomson Worldscope	0.205	0.089	0.268	1937
Share of sales abroad	Thomson Worldscope	0.205	0.089	0.268	1937
Moody rating	Mergent	A2	A2	4.062	2016
Share of international bonds outstanding	Mergent	0.038	0.000	0.143	2223
St. deviation of analyst earnings forecasts	IBES	0.391	0.063	5.705	2130
Bond ownership variables					
Int. own. across all firms	Lipper	0.237	0.182	0.206	3172
Int. own. from funds within US (NY part)	Lipper	0.153	0.121	0.152	3172
Int. own. from funds outside of US (Overseas part)	Lipper	0.085	0.018	0.163	3172
Int. own. in firms that issue dom. debt	Lipper/SDC	0.194	0.141	0.212	1591
Int. own. in firms that issue int. debt	Lipper/SDC	0.206	0.170	0.173	374
Bank lending variables					
Int. bank lending across all firms	LPC Dealscan	0.265	0.247	0.205	1786
Int. bank lending from banks within US (NY part)	LPC Dealscan	0.068	0.034	0.111	1786
Int. bank lending from banks outside of US (Overseas part)	LPC Dealscan	0.197	0.162	0.183	1786
Int. bank lending in firms that issue dom. debt	LPC Dealscan	0.205	0.154	0.217	1591
Int. bank lending in firms that issue int. debt	LPC Dealscan	0.290	0.286	0.231	374
Bonds in primary market					
Issue size (\$m)	SDC	204.5	79.5	352.0	22453
Issue size for international issues (\$m)	SDC	469.2	271.0	549.9	4348
Maturity (years)	SDC	5.9	4.0	5.6	22453
Maturity for international issues (years)	SDC	5.6	5.0	4.3	4348
Offering yield spread (bp)	SDC	84.1	60.0	132.3	16976
Offering yield spread for international issues (bp)	SDC	72.4	41.0	123.1	3122
Domestic bonds in secondary market					
Issue size (\$m)	Bloomberg	138.6	95.8	312.6	16657
Maturity (years)	Bloomberg	9.1	6.6	9.5	16657
Option adjusted spread (bp)	Bloomberg	347.2	129.2	1775.6	16656
Int. managing firm variables					
Ownership by single int. investor (firm level)	Lipper	0.009	0.002	0.031	
Ownership by peers to single int. investor (firm level)	Lipper	0.055	0.029	0.072	
Int. managing firm size (\$m)	Lipper	886.3	46.8	4,470.6	690
Int. managing firm concentration	Lipper	0.248	0.171	0.232	690
Int. managing firm ownership of int. issues	Lipper/Mergent	0.505	0.492	0.292	690
Int. managing firm rating profile	Lipper/Mergent	Ba1	Ba1-Ba2	4.139	690
Int. managing firm leverage profile	Lipper/Compustat	0.296	0.272	0.188	690
Int. managing firm M/B profile	Lipper/Compustat	2.003	2.482	57.285	690
Int. managing firm issuer size profile (\$m)	Lipper/Compustat	195,630.0	155,091.5	209,184.8	690
Int. managing firm ROA profile	Lipper/Compustat	0.055	0.045	0.049	690
Dom. managing firm variables					
Ownership by single dom. investor (firm level)	Lipper	0.014	0.001	0.050	
Dom. managing firm size (\$m)	Lipper	1,233.4	26.0	5,377.1	1255
Dom. managing firm concentration	Lipper	0.159	0.055	0.359	1255
Dom. managing firm ownership of int. issues	Lipper/Mergent	0.185	0.092	0.232	1227
Dom. managing firm rating profile	Lipper/Mergent	Baa2- Baa3	Baa3- Ba1	4.111	1255
Dom. managing firm leverage profile	Lipper/Compustat	0.120	0.074	0.127	1247
Dom. managing firm M/B profile	Lipper/Compustat	2.506	2.073	13.995	1245
Dom. managing firm issuer size profile (\$m)	Lipper/Compustat	63,502.8	34,673.9	102,437.3	1247
Dom. managing firm ROA profile	Lipper/Compustat	0.038	0.025	0.082	1244

Table 2. Purchases of Newly Issued Bonds by International Investors
Panel A. International Bonds

We report marginal effects at means of variables from bond/managing firm-level probit and tobit regressions where the dependent variable is the decision by a certain international investor to purchase some newly issued international bond of US firm. For each new bond issue, the set of potential investors is considered to be all non-US international managing firms that hold any securities of US firms. We record the purchases of a new issue on the first date when the information about the holdings of the bond is provided in Lipper database. We exclude those observations where the first recorded purchase date for the bond is later than one year after the offering date of a bond as reported in Mergent.

Share of dom. investors, Share of peers and Previous own ownership refer to the percentages of the face value of bonds of the firm that were held by respectively US investors; other investors that come from the same country as the international investor in question; and international investor in question itself one quarter before the offering date of the issue. Share of dom. lending and Share of peer bank lending refer to the percentage of the issuer's loans from respectively US banks and banks that come from the same country as the international investor in question. Share of first peers refers to the first available record of Share of peers for the firm in the dataset.

Column A fits a tobit model while Columns B-G provide estimates for the probit models. Columns A and B refer to the full sample. Columns C and D restrict the sample to the cases where peers from the same country as the international manager hold a positive amount and no amount of firm's bonds, respectively. Columns E-F add country fixed effects. In addition, Column F includes the managing firm control variables estimated in the last quarter before the offering date of the issue. Managing firm controls include managing firm size, ownership of international issues, concentration ratio, rating profile, leverage profile, M/B profile, issuer size profile, ROA profile. Estimation in Column G includes Share of first peers as additional exogenous variable. All regressions include rating and time dummies and are clustered at a manager level.

	(A) Tobit	(B) Probit	(C) Peers > 0	(D) Peers = 0	(E) With Country Fixed Ef.	(F) With Man. Firm Variables	(G) With First Peers
Share of dom. investors	0.066*** 3.56	0.017*** 3.045	0.027*** 2.595	0.007 1.506	0.010*** 2.937	0.003** 2.257	0.016*** 2.998
Share of peers	0.206*** 5.308	0.054*** 3.653	0.056*** 2.869		0.030*** 3.288	0.010** 2.463	0.048*** 3.544
Previous own ownership	0.165*** 5.186	0.043*** 3.694	0.055*** 2.829	0.192* 1.814	0.031*** 3.669	0.007** 2.541	0.043*** 3.766
Share of dom. lending	0.011*** 3.572	0.002*** 2.654	0.001 1.404	0.002* 1.674	0.001 1.549	0 1.537	0.002*** 2.64
Share of peer bank lending	0.051*** 3.795	0.013*** 2.841	0.003 0.719	0.009* 1.834	-0.005 -1.546	-0.002 -1.594	0.013*** 2.83
Share of first peers							0.009*** 3.663
Issue size	-0.000* -1.659	0 -0.231	0 -0.622	0 -0.315	0 -0.531	0 -0.579	0 -0.074
Maturity	0 0.324	0 0.639	0 0.918	0 -0.342	0 0.842	0 0.384	0 0.588
Subordination	0.001 0.637	0 0.279	0.001 1.332	0 -0.746	0 0.785	0 0.593	0 0
Covenants	-0.001** -2.251	-0.000** -2.079	-0.000*** -2.613	0 -0.134	-0.000** -2.129	-0.000** -1.961	-0.000* -1.678
Tangibility	-0.008** -1.984	-0.003** -2.236	-0.004** -1.991	0.001 0.452	-0.002** -2.211	-0.001* -1.877	-0.003** -2.423
ROA	-0.003 -0.863	-0.001 -0.901	-0.005* -1.803	0 0.642	-0.001 -0.917	0 -1.114	-0.001 -1.033
Leverage	0.019*** 4.464	0.005*** 3.636	0.005** 2.42	0.002* 1.859	0.004*** 3.45	0.001** 2.572	0.005*** 3.622
Market to book ratio	0 1.009	0 0.968	0 0.524	0 0.909	0 0.904	0 0.965	0 0.984
Asset size	0.001** 2.492	0.000* 1.736	0 0.498	0 -1.156	0 1.124	0 0.948	0.000** 2.158
Share of assets in country	0.003 0.391	-0.001 -0.636	-0.003 -1.325	0.001 0.707	-0.001 -1.049	0 -0.713	-0.001 -0.604
Country fixed effects	No	No	No	No	Yes	Yes	No
Managing firm controls	No	No	No	No	No	Yes	No
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rating dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	249168	249168	132866	116158	249168	217167	249168

* p<0.10, ** p<0.05, *** p<0.01

Panel B. Domestic Bonds

We report marginal effects at means of variables from bond/managing firm-level probit and tobit regressions where the dependent variable is the decision by a certain international investor to purchase some newly issued domestic bond of US firm. For each new bond issue, the set of potential investors is considered to be all non-US international managing firms that hold any securities of US firms. We record the purchases of a new issue on the first date when the information about the holdings of the bond is provided in Lipper database. We exclude those observations where the first recorded purchase date for the bond is later than one year after the offering date of a bond as reported in Mergent.

Share of dom. investors, Share of peers and Previous own ownership refer to the percentages of the face value of bonds of the firm that were held by respectively US investors; other investors that come from the same country as the international investor in question; and international investor in question itself one quarter before the offering date of the issue. Share of dom. lending and Share of peer bank lending refer to the percentage of the issuer's loans from respectively US banks and banks that come from the same country as the international investor in question. Share of first peers refers to the first available record of Share of peers for the firm in the dataset.

Column A fits a tobit model while Columns B-G provide estimates for the probit models. Columns A and B refer to the full sample. Columns C and D restrict the sample to the cases where peers from the same country as the international manager hold a positive amount and no amount of firm's bonds, respectively. Columns E-F add country fixed effects. In addition, Column F includes the managing firm control variables estimated in the last quarter before the offering date of the issue. Managing firm controls include managing firm size, ownership of international issues, concentration ratio, rating profile, leverage profile, M/B profile, issuer size profile, ROA profile. Estimation in Column G includes Share of first peers as additional exogenous variable. All regressions include rating and time dummies and are clustered at a manager level.

	(A) Tobit	(B) Probit	(C) Peers > 0	(D) Peers = 0	(E) With Country Fixed Ef.	(F) With Man. Firm Variables	(G) With First Peers
Share of dom. investors	0.008	0.006***	0.009**	0.005***	0.002***	0.000**	0.006***
	1.38	2.626	2.016	2.594	3.366	2.571	2.644
Share of peers	0.052***	0.012***	0		-0.001	0	0.009***
	14.621	3.211	0.032		-0.581	-0.428	2.834
Previous own ownership	0.087***	0.024***	0.035***	0.168***	0.012***	0.000***	0.024***
	11.064	3.754	3.47	4.342	5.526	2.699	3.787
Share of dom. lending	0.003*	0.001***	0.001	0.001***	0.000***	0.000**	0.001***
	1.87	4.205	1.423	4.146	2.69	2.027	4.16
Share of peer bank lending	0.031***	0.007***	0.004	0.005***	0	0	0.007***
	6.623	3.373	1.395	3.434	0.906	0.459	3.36
Share of first peers							0.005***
							3.485
Issue size	0	0.000***	0.000**	0.000***	0.000***	0.000**	0.000***
	0.935	3.507	2.102	2.705	4.326	2.549	3.326
Maturity	0	0	0	0	0	0	0
	-0.767	-0.716	-0.911	-0.361	-0.619	-0.606	-0.677
Subordination	0	0	0.000**	0	0	0	0
	-0.032	1.342	2.134	-0.43	1.463	0.843	1.389
Covenants	0.000***	0.000***	0.000**	0	0.000***	0.000**	0.000***
	3.83	3.74	2.363	1.604	4.089	2.331	3.812
Tangibility	-0.005***	-0.001***	-0.001**	-0.001***	-0.001***	-0.000***	-0.001***
	-5.499	-3.409	-2.49	-3.178	-4.381	-2.694	-3.411
ROA	0.001	0.000*	-0.002	0.000***	0.000*	0	0.000**
	1.095	1.926	-1.529	2.796	1.714	0.584	1.972
Leverage	-0.002*	0	-0.003***	0	0	0	0
	-1.839	-0.813	-3.552	-0.04	-0.882	-0.07	-0.888
Market to book ratio	0	0.000**	0	0	0.000***	0.000**	0.000**
	1.511	2.477	0.841	1.423	2.658	2	2.436
Asset size	0	0.000**	0	0	0	0	0.000**
	0.109	2.156	-1.318	-0.391	1.545	1.387	2.486
Share of assets in country	0.003	0.001**	0	0.001**	0.000***	0.000**	0.001**
	1.55	2.427	0.131	2.57	3.598	2.288	2.48
Country fixed effects	No	No	No	No	Yes	Yes	No
Managing firm controls	No	No	No	No	No	Yes	No
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rating dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2197727	2197727	529594	1665235	2197727	2126782	2197727

* p<0.10, ** p<0.05, *** p<0.01

Table 3. Interaction Effects in International Issues

We report marginal effects at means of variables from bond/managing firm-level probit regressions where the dependent variable is the decision by a certain international investor to purchase some newly issued international bond of US firm. The specification and the variables used are the same as in Table 2, Panel A, Column F. Here, we split the full sample according to the median values of various firm and bond specific characteristics: Share of dom. investors, Share of peers, Previous own ownership, Share of dom. lending, Share of peer bank lending, Issue size, Maturity, Covenants, Rating, Deviation of analyst earnings forecasts and also by whether managing firm j is located in the country which purchased the most of the bond issue k (Top Purchasing Country) and whether it is the first or last bond issue of an issuing observed in the sample. We perform the splits one-by-one and indicate the variable according to which we split the sample in Column A. The median values of these variables that were used to split the samples are reported in Column B.

We only report the coefficients for Share of peers (Column C) and Share of dom. investors (Column D), suppressing the control variables. For each split, we report the coefficients for these variables for Above median and Below median subsamples in subcolumns (i) and (ii) respectively. In the (iii) subcolumn, a chi-squared test is performed using the seemingly unrelated estimation for the pairs of the two models (Above median and Below median).

As the full-sample median value for Share of peers is close to 0 which does not allow estimating marginal effect of Share of peers below median, we perform the split by median value of Share of peers for the subsample observations for which Share of peers is strictly larger than zero.

(A) Variable used for the split	(B) Median value	(C) Share of peers			(D) Share of dom. investors		
		(i) Above median	(ii) Below median	(iii) Difference	(i) Above median	(ii) Below median	(iii) Difference
Share of dom. investors	94.65%	0.005	0.001	0.004	0.007***	0	0.007***
		1.423	0.43	1.461	3.527	0.427	10.606
Share of peers (for <i>Share of peers</i> > 0)	0.06%	0.02	0.031	-0.011	0.009	0	0.009***
		0.827	0.88	0.036	0.809	0.321	14.43
Previous own ownership	0%	0.146**	0.006**	0.14	0.132***	0.001	0.131***
		2.338	2.228	2.571	4.444	1.625	22.123
Share of dom. lending	60%	0.015***	0	0.015***	0.005***	0	0.005***
		6	0.39	32.923	3.456	0.416	12.241
Share of peer bank lending	0%	0	0.008*	-0.008	0.002	0.003*	-0.01
		0.059	2.046	2.543	1.376	1.908	0.316
Issue size	9.62	0.002	0.005	-0.003	0.001	0.005***	-0.004***
		1.153	0.911	0.207	1.107	3.411	9.087
Maturity	2467	0.006	0.018***	-0.012***	0.001	0.007***	-0.006***
		0.895	4.449	6.901	0.796	4.703	16.922
Covenants	5	0	0.018***	-0.018***	0	0.006***	-0.006***
		0.391	6.566	36.913	0.394	4.31	20.772
Moody rating	A2	0.012**	0.002	0.01	0.009***	0.001**	0.008***
		2.331	1.412	2.466	4.335	2.036	18.43
Analyst deviation	0.06	0.014	0.004*	0.01***	0.006	0.001	0.005***
		0.866	1.935	11.662	0.861	1.038	11.882
Share of assets in country	0%	0.012**	-0.003	0.015***	0.003	0.001	0.002
		2.494	-1.464	14.309	2.013	1.311	2.061
Trust in country	37.15%	0.01***	0.004	0.006*	0.004***	0.002	0.002*
		5.126	1.392	2.928	3.333	1.343	3.044
		(i) Top country	(ii) Non-top country	(iii) Difference	(i) Top country	(ii) Non- top country	(iii) Difference
Top purchasing country		0.012***	0.005**	0.007**	0.004***	0.001	0.003**
		4.564	2.428	6.287	2.856	1.413	4.812
		(i) First issue	(ii) Last issue	(iii) Difference	(i) First issue	(ii) Last issue	(iii) Difference
Order of bond		0.009	0.004**	0.005**	0.003**	0.001	0.002**
		2.904	2.323	5.376	2.309	0.787	4.964

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4. Characteristics of Newly Issued Bonds Purchased by International Investors

We report marginal effects at means of variables from bond-level tobit regressions where the dependent variable is the percentage of the face value of the newly issued bond of US firm that is bought by all international investors combined. The set of international investors is considered to be all non-US international managing firms. We record the purchases of a new issue on the first date when the information about the holdings of the bond is provided in Lipper database.

Share of dom. investors, Share of peers and Previous own ownership refer to the percentages of the face value of bonds of the firm that were held by respectively US investors; other investors that come from the same country as the international investor in question; and international investor in question itself one quarter before the offering date of the issue. Share of dom. lending and Share of peer bank lending refer to the percentage of the issuer's loans from respectively US banks and banks that come from the same country as the international investor in question.

Column A refers to the full sample. Column B refers to the subsample that is matched with Mergent for bond level specific characteristics. Here, we exclude those observations where the first recorded purchase date for the bond is later than one year after the offering date of a bond as reported in Mergent. Columns C and D report the results for the subsamples for firms with the st. dev. of analyst forecasts below and above 0.06, respectively. Columns E-F report the results for the subsamples for firms with the Moody's rating at or above A2, below A2 and no rating available, respectively. All regressions include time dummies and are clustered at an issuer level.

	(A) All	(B) Mergent	(C) Low analyst dev.	(D) High analyst dev.	(E) High rating	(F) Low rating	(G) No rating
Share of int. investors	0.469*** 6.19	0.214*** 3.768	0.382*** 3.932	0.741*** 5.834	-0.234 -0.492	0.375*** 5.104	0.678*** 6.294
Share of int. lenders	0.166** 2.085	0.008 0.241	0.190*** 2.797	-0.034 -0.333	0.13 0.981	-0.03 -0.731	0.208** 1.973
International issue		0.210*** 5.044					
Issue size	2.748 0.382	8.431*** 3.35	0.359 0.053	446.111* 1.766	7471.8*** 2.952	5.774* 1.883	-97.663 -1.317
Maturity	0 -1.118	-0.000** -2.4	-0.000** -2.249	0 0.637	0 -1.587	0 0.005	0 -0.541
Subordination		0.023 1.023					
Covenants		0.013*** 7.31					
Tangibility	-0.183*** -3.421	-0.106*** -2.943	-0.248*** -3.762	-0.317*** -3.369	-0.516* -1.865	-0.121*** -2.734	-0.222** -2.276
ROA	-0.112 -1.551	-0.048 -1.106	-0.091 -0.891	-0.095 -1.05	0.810* 1.712	-0.023 -0.398	-0.312** -2.458
Leverage	0.12 1.486	-0.005 -0.127	0.071 0.656	0.1 0.886	-0.128 -0.609	-0.004 -0.078	0.300*** 2.955
Market to book ratio	0 -0.519	0 0.421	0 -0.551	0 0.291	0 -1.165	0 0.548	0 -0.467
Asset size	0.025** 2.459	-0.021*** -2.914	0.016 1.367	0.038*** 2.621	0.074** 2.386	0.013 1.528	0.056*** 4.301
Moody rating	-0.007*** -3.126	-0.003** -2.517	-0.002 -1.042	-0.012*** -3.467	0.065* 1.775	-0.029*** -7.347	
Analyst deviation	0.001*** 6.693	-0.002** -2.44	-0.101 -0.126	0.001*** 5.343	-0.003** -2.034	-0.003*** -2.703	0.002*** 4.149
Share of assets abroad	-0.009 -0.322	-0.021 -1.099	-0.025 -0.724	-0.007 -0.165	-0.031 -0.358	-0.017 -0.798	0.025 0.561
Constant	-0.227* -1.753	0.192 1.258	0.136 0.942	-0.138 -0.681	-1.694** -2.194	0.309*** 3.611	-0.526*** -3.023
N	21448	8790	10935	10513	5418	7046	8984

(d) for discrete change of dummy variable from 0 to 1

* p<0.10, ** p<0.05, *** p<0.01

Table 5. Purchases of Outstanding Bonds by International Investors

We report the coefficients from panel regressions estimated at the firm/managing firm level where dependent variable is the percentage of the face value of the bonds of the firm that is held by an international investor. For each firm, the set of investors is considered to be those investors that have non-zero investment into the bonds of the firm.

Share of dom. investors, Share of peers and Previous own ownership refer to the percentages of the face value of bonds of the firm that were held by respectively US investors; other investors that come from the same country as the international investor in question; and international investor in question itself one quarter before the offering date of the issue. Share of dom. lending and Share of peer bank lending refer to the percentage of the issuer's loans from respectively US banks and banks that come from the same country as the international investor in question.

Column A refers to the panel regression with firm/managing firm fixed effects and standard errors clustered at a managing firm level. Column B provides the estimates of Fama-MacBeth regression. Column C gives the results of Arellano-Bond GMM estimation with the heteroskedasticity robust standard errors. In Column C the sample size restricted to the firm/managing firm observations that contain no time gaps. In Columns A-B, Share of dom. investors, Previous own ownership, Share of peers and Share of dom. lending and Share of peer bank lending refer to lagged levels of respective variables while in Column C to lagged first differences.

	(A) Fixed Effects	(B) Fama- MacBeth	(C) Arellano- Bond
Share of dom. investors	0.001	-0.003**	0.070***
	0.377	-2.294	10.631
Share of peers	0.005*	0.009***	0.070***
	1.955	4.404	9.679
Previous own ownership	0.595***	0.912***	0.523***
	29.65	95.728	12.213
Share of dom. lending	0	0.001***	-0.001
	0.757	3.346	-0.667
Share of peer bank lending	0.001	-0.001	0.003
	0.532	-0.532	1.318
Tangibility	0.002	0.002***	-0.001**
	1.177	5.986	-2.549
ROA	0.001	-0.007***	0
	1.096	-3.377	-0.856
Leverage	-0.003	-0.002***	0
	-1.581	-4.226	0.811
Market to book ratio	0	0	0
	0.978	-0.414	0.125
Asset size	-0.003***	-0.001***	0
	-5.741	-6.507	-1.569
Share of assets abroad	-0.001**	0	0
	-2.139	1.31	-0.031
Constant	0.036***	0.016***	0.001*
	5.99	8.486	1.945
Country fixed effects	No	No	No
Managing firm controls	No	No	No
Time dummies	Yes	No	No
Rating dummies	Yes	Yes	Yes
R-squared	0.372		
N	364261	364261	229755

* p<0.10, ** p<0.05, *** p<0.01

Table 6. Probability of Default

We report the marginal effects at means of variables from bond-level probit regressions, where the dependent variable is defined as 1 if the bond defaults and 0 if it does not default over the next quarter. Default is defined as any default (bankruptcy, interest, covenant, principal) as reported in the Mergent database.

In Column A, we provide the results for all bonds in the panel. In Columns B and C, we pick one bond per firm per quarter. In Column B, we choose the least actively traded bond of the firm in quarter where the activity of trading is defined by the number of accounts that change holdings of the bond from Lipper. In Column C, we select the bond of the firm with the longest maturity. All regressions include time and use heteroskedasticity robust standard errors.

	(A) All	(B) Least active	(C) Longest maturity
Share of int. investors	0.001*	0.001**	0.001**
	1.761	2.237	2.447
Share of int. lenders	0	0	0
	0.588	-0.28	-0.027
Maturity	0	0	0
	-0.887	0.284	-0.364
Tangibility	0	0	0
	1.242	0.502	0.464
ROA	-0.001*	-0.002**	-0.003**
	-1.764	-2.102	-2.217
Leverage	0	0	0
	0.994	1.181	1.084
Market to book ratio	0	0	0
	1.024	0.729	0.78
Asset size	-0.000**	-0.000*	-0.000*
	-2.253	-1.863	-1.825
Issue size	-1.668*	-2.824	-2.587
	-1.666	-1.361	-1.26
Moody rating	-0.000***	-0.000***	-0.000***
	-3.016	-4.151	-4.393
Yield spread	0.000**	0.000**	0.000**
	2.182	2.144	2.159
Share of assets abroad	0	0	0
	-1.618	-1.204	-1.073
N	65107	19630	19686

* p<0.10, ** p<0.05, *** p<0.01

Table 7. Yield Spreads in the Primary Market
Panel A. International Issues

We report the coefficients of a firm-level two-stage estimation of an endogenous switching regression model with overlapping samples. The dependent variable is the offering yield spread of a new international bond issue. An issue is defined as international if SDC defines it as international, global or eurobond issue. Offering yield spread is calculated as the number of basis points over the comparable maturity Treasury bond for fixed rate issues and as the number of basis point spread between the coupon rate and the rate of the index off which the coupon is reset for floating rate issues.

In Column A the results for complete panel are provided. Columns B and C report the results for the subsamples for firms with the st. dev. of analyst forecasts below and above 0.06, respectively. Columns D and E report the results for the subsamples for firms with the Moody's rating at or above A2 and below A2, respectively.

The ownership by international investors is split into the ownership by investors that are registered outside of US (Overseas part) and ownership by investors that are registered within US but belong to non-US managing firm families (NY part). International bank lending is defined analogously. All regressions include time and rating dummies.

	(A) Complete panel	(B) Low analyst dev.	(C) High analyst dev.	(D) High rating	(E) Low rating	(F) No rating
Share of int. investors (Overseas part)	-145.487** -2.46	-22.847 -0.27	-232.16*** -2.705	-82.87 -1.399	-401.191* -1.867	-237.481 -1.252
Share of int. investors (NY part)	15.626 0.456	64.596 1.413	-33.422 -0.604	37.214 0.845	9.387 0.165	-74.955 -0.653
Share of int. lenders (Overseas part)	15.578 0.925	-13.399 -0.513	21.482 0.944	9.458 0.442	65.254 1.578	-101.520* -1.69
Share of int. lenders (NY part)	2.815 0.051	-72.027 -0.902	67.533 0.87	-5.109 -0.071	11.462 0.113	37.096 0.148
Maturity	0.454*** 7.397	0.494*** 5.797	0.457*** 5.3	0.539*** 8.629	0.394*** 2.692	0.153 0.921
Availability of covenants	-28.158*** -3.175	-14.269 -1.169	-39.184*** -3.087	-21.592** -2.538	-22.06 -0.857	-67.14*** -2.658
Total issue size over quarter	25.339 1.134	36.175 1.166	48.589 1.452	38.558 1.187	-31.414 -0.838	-77.745* -1.922
Tangibility	-27.933 -1.377	-180.9*** -3.219	-6.083 -0.276	-0.449 -0.025	-123.319* -1.783	-261.343* -1.801
ROA	88.544*** 4.791	72.215** 2.289	119.439*** 4.509	41.894* 1.87	31.322 0.719	-542.8*** -3.753
Leverage	0.661 2.864	0.102 2.575	0.563 1.382	0.757 8.012	0.061 -6.7	41.462 0.627
Market to book ratio	0.433 26.176***	0.209 35.721**	0.153 31.880**	0.989 8.717	-0.597 3.819	1.41 -100.3***
Asset size	2.638 16.901	2.36 60.996**	2.101 -3.736	0.789 48.471	0.157 -20.595	-2.948 3.957
Share of assets abroad	1.214 11.085	2.21 23.782	-0.206 4.301	1.323 -4.963	-0.914 -63.243	0.135 -157.423*
Inverse Mills ratio	0.561 330.138***	0.68 258.242	0.168 384.399***	-0.192 -90.335	-1.255 515.98***	-1.816 1909.5***
Constant	2.894 6320	1.354 2935	2.852 3018	-0.704 1854	2.691 3138	3.173 1328
N						

Panel B. Difference in yield spreads between international and domestic issues

We report the estimates of firm-level regressions where the dependent variable is the difference between the offering yield spreads of international and domestic issues for a certain US firm, based on the new bond issues it has done over the quarter. An issue is defined as international if SDC defines it as international, global or eurobond issue. Offering yield spread is estimated as the number of basis points over the comparable maturity Treasury bond for fixed rate issues and as the number of basis point spread between the coupon rate and the rate of the index off which the coupon is reset for floating rate issues.

Column A calculates the difference between the offering yield spreads of matched international and domestic bonds where matching is done based on maturity, covenant and ratings. Column B calculates the difference between the weighted averages of offering yield spreads of international and domestic bonds the firm issued over the period, where weights are based on the issue sizes of the bonds. Bond-specific control variables (maturity, availability of covenants and ratings) in this column are estimated as the weighted averages of these control variables for international bonds.

The ownership by international investors is split into the ownership by investors that are registered outside of US (Overseas part) and ownership by investors that are registered within US but belong to non-US managing firm families (NY part). International bank lending is defined analogously. All regressions include time and rating dummies and are clustered at the issuer level.

	(A) Matched bonds	(B) Weghted averages
Share of int. investors (Overseas part)	-285.602***	-191.335*
	-2.675	-1.674
Share of int. investors (NY part)	49.175	103.304
	0.698	1.505
Share of int. lenders (Overseas part)	29.971	-14.816
	0.965	-0.505
Share of int. lenders (NY part)	208.583***	153.133
	2.694	1.399
Maturity	0.244**	0.245
	2.04	1.517
Availability of covenants	-24.908**	-40.745***
	-2.364	-2.749
Total issue size over quarter	27.377	30.099
	1.414	1.582
Tangibility	89.472	62.114
	1.066	0.967
ROA	-42.022	-82.206
	-0.255	-0.512
Leverage	85.646**	94.385**
	2.402	2.283
Market to book ratio	0.034**	0.003
	2.114	0.164
Asset size	49.549***	23.783
	2.794	1.587
Share of assets abroad	31.732*	31.307
	1.877	1.559
Inverse Mills ratio	79.634**	46.402
	2.087	1.458
Constant	-873.889***	-544.660**
	-3.303	-2.283
R-squared	0.079	0.072
N	540	541

* p<0.10, ** p<0.05, *** p<0.01

Table 8. Probability of International Issues

We report the marginal effects at means of variables from firm-level probit regressions of the decision of the US firm to issue an international bond. The definition of dependent variable differs across Columns A-D. The dependent variable in Column A is equal to 1 if the firm issues at least one international issue over the quarter and equal to 0 if the firm issues only domestic issues over the quarter. Here, an issue is defined as international if SDC defines it as international, global or eurobond issue. In Columns B-D the dependent variable is equal to 1 if the firm issues at least one issue in specific currency (1) over the quarter and equal to 0 if the firm issues only in any other currencies (0) over the quarter. The currencies are EUR, GBP and JPY in Columns B, C and D, respectively.

In Column A the set of variables Share of int. investors from area is defined in terms of the percentages of the face value of bonds of the firm that were held by all international investors combined. Share of int. investors from area is split into the ownership by investors that are registered outside of US (Overseas part) and ownership by investors that are registered within US but belong to non-US managing firm families (NY part). In Subcolumn (i) international sales is used as a control variable while in Subcolumn (ii) international assets is used as a control variable. Across Columns B-D, Share of int. investors from area is defined in terms of percentages of the face value of bonds of the firm that were held by the investors that come from the currency area in question, and split as in Column A. Subcolumns (i) and (ii) are defined analogously. Share of sales (assets) from area represents the percentage of sales (assets) of the firm that comes from the currency area in question.

International bank lending is defined analogously to international bondownership across Columns (A)-(D). All regressions include time and rating dummies and are clustered at the issuer level.

	(A) All int.issues		(B) EUR		(C) GBP		(D) JPY	
	(i) Sales	(ii) Assets	(i) Sales	(ii) Assets	(i) Sales	(ii) Assets	(i) Sales	(ii) Assets
Share of int. investors from area (Overseas part)	0.465*	0.497**	1.773**	2.118***	1.16	1.204	23.876**	18.229
	1.91	2.067	2.209	2.998	1.326	1.382	2.283	1.55
Share of int. investors from area (NY part)	0.038	0.031	-0.193	-0.033	0.352	0.333	1.355	1.226
	0.189	0.15	-0.439	-0.076	0.546	0.513	0.735	0.664
Share of int. lenders from area (Overseas part)	0.417**	0.464***	0.345	0.800*	0.482	0.81	2.298***	2.138***
	2.326	2.64	0.748	1.783	0.648	1.281	3.215	3.468
Share of int. lenders from area (NY part)	0.277	0.214	-0.381	-0.778	2.501	2.78	-5.056	-6.923
	0.772	0.598	-0.363	-0.675	1.446	1.45	-0.63	-0.856
Share of sales in currency area	0.505***		2.104***		1.692***		1.701***	
	5.727		7.119		3.573		3.191	
Share of assets in currency area		0.524***		2.017***		1.601***		2.072***
		5.814		6.892		3.422		5.743
Total issue size over quarter	0.032*	0.032*	0.026	0.029*	0.014	0.018	0.019	0.016
	1.805	1.781	1.64	1.827	0.415	0.518	0.932	0.798
Tangibility	0.334*	0.372*	0.405	0.472	-0.487	-0.556	-0.044	0.058
	1.676	1.909	1.44	1.622	-0.646	-0.728	-0.125	0.155
ROA	0.966***	0.979***	0.585**	0.620**	-1.347**	-1.352**	0.918***	0.969***
	3.158	3.164	2.177	2.441	-2.157	-2.233	3.243	3.305
Leverage	2.850***	2.900***	3.370***	3.397***	1.049	1.036	3.337***	3.635***
	7.659	8.211	7.255	7.673	1.32	1.315	5.196	5.633
Market to book ratio	-0.000***	-0.000***	0	0	0	0	0	0
	-4.293	-4.251	-1.527	-1.537	0.987	1.179	-0.288	-0.028
Asset size	2.201***	2.244***	2.129***	2.230***	0.418	0.46	1.793***	2.038***
	7.401	7.813	5.994	6.712	0.775	0.885	4.193	4.405
Inverse Mills ratio	6.915***	7.060***	6.869***	7.217***	0.104	0.221	5.519***	6.403***
	6.31	6.658	5.138	5.743	0.047	0.103	3.261	3.559
N	6397	6397	6397	6397	6397	6397	6397	6397

(d) for discrete change of dummy variable from 0 to 1

* p<0.10, ** p<0.05, *** p<0.01

Table 9. Yield Spread Relations to International Ownership of Domestic Bonds in the Secondary Market

We report the estimates of a bond-level system of simultaneous equations of yield spread change (Column A) and change in international investor bondownership (Column B). Changes are calculated at quarterly frequency. Out of the sample of bonds that have the yields reported in Bloomberg and could be matched at a bond-level to Lipper database, the bond with the longest remaining maturity for each firm is chosen every quarter.

Yield spread is the option adjusted spread. The international investor ownership includes the ownership by all investors that belong to non-US managing firm families. International bank lending is defined analogously.

Subcolumn (i) uses all observations in the panel. Subcolumn (ii) uses the observations that have international investor bondownership of less than 15% at the end of the quarter. Subcolumn (iii) uses the observations that have international investor bondownership larger than 15% at the end of the quarter.

	(A) Change in yield spread			(B) Change in int. investor own.		
	(i) All obs.	(ii) Int. own.<15%	(iii) Int. own.>15%	(i) All obs.	(ii) Int. own.<15%	(iii) Int. own.>15%
Change in int. investor own.	0.107**	0.02	0.139**			
	2.017	0.521	1.973			
Change in yield spread				-3.128***	-3.577***	-1.436***
				-10.507	-9.436	-4.548
Change in int. bank lending	-0.001	-0.002	-0.002	-0.004	-0.013	0.007
	-0.409	-0.64	-0.307	-0.316	-0.889	0.414
Leverage	0.005***	0.002**	0.008***	0.023***	-0.002	0.008
	5.36	2.538	5.432	5.767	-0.518	1.554
ROA	-0.012***	-0.007***	-0.014***	-0.052***	-0.001	-0.043***
	-7.551	-3.544	-5.093	-6.951	-0.142	-4.805
Market to book ratio	0	0	0	0	0	0
	0.854	-0.043	0.891	-0.294	-0.317	-0.803
Tangibility	-0.001	0	-0.003	0.005	0	0.011**
	-1.107	0.211	-1.485	1.164	-0.073	2.245
Asset size	-0.000***	-0.001***	0	-0.002***	0.002**	-0.006***
	-2.722	-2.993	0.533	-4.565	2.472	-9.709
Share of assets abroad	0	0	0	0	0.002	-0.002
	0.276	0.572	-0.21	-0.239	0.801	-0.725
Bond downgraded to junk	0.002	0.004**	0	0.022**	0.029***	0.020*
	0.811	2.004	-0.058	2.514	2.946	1.708
Change in norm. bond size	-19.770***	-22.542***	-19.722*			
	-2.96	-2.921	-1.913			
Change in quality spread in market	0.009***	0.007***	0.010***			
	9.739	7.167	5.381			
Change in credit spread in market	0.015***	0.008***	0.019***			
	4.986	4.565	4.862			
Change in 30y T-bond rate	0.001	0.001***	0.001			
	1.486	2.966	0.963			
Change in aggr. int. inv. own.				0.176***	0.221***	0.183***
				5.565	6.229	4.571
Constant	0.005***	0.005***	-0.002	0.017***	-0.030***	0.067***
	3.282	2.6	-0.334	2.667	-4.047	8.314
N	23100	11719	11381	23100	11719	11381

* p<0.10, ** p<0.05, *** p<0.01