

Crisis and Inside Information: When Insiders Help

Massimo Massa^{*}, Lei Zhang[†]

Very Preliminary. Please do not quote.

Abstract

We study the role of international institutional investors in propagating financial market instability and the mediating role of the banking sector during the recent financial crisis. We argue that the international institutional investors with affiliated banks share the information about the borrowers with affiliated bank. This provides inside information that reduces their incentive to sell the assets in international firms as the crisis hits. This affects the transmission of the crisis for the stocks held by bank-managed funds. We test this using complete data on international mutual funds and international stocks over the period 2000-2009. We show that bank affiliation provides an informational advantage that more than offsets the disadvantage due to geography, this will reduce the fund incentive to sell the assets in which they have superior information, regardless of whether they are located abroad. Next, we provide evidence that in normal time this inside information makes bank-managed funds insiders and this reduces the liquidity of the stocks they hold, increases skewness and probability of extreme realizations and makes them more subject to short-selling behavior. However, when the crisis hits, bank-managed funds' insider stake increases liquidity, reduces short-selling, skewness and probability of extreme realizations.

^{*} Massimo Massa: INSEAD, Finance Department, Bd de Constance, 77305 Fontainebleau Cedex, France, tel. +33(0)1-60-72-44-81, email: massimo.massa@insead.edu. Lei Zhang: Nanyang Business School, Nanyang Technological University, Finance Department, 50 Nanyang Avenue, Singapore 639798, tel. +65-6790-5000, email: zhangl@ntu.edu.sg. We thank Europlace whose grant has made this research possible.

Introduction

We study the role of international institutional investors (e.g., mutual funds) in propagating financial market instability and the mediating role of the banking sector. There is by now enough empirical evidence showing that the turmoil in one class of assets traded in a geographical region propagates to other classes of assets in other regions thanks to the common ownership by international investors. For example, if an international fund holds equity of both Japanese firms and US firms, a shock to the US market may be transmitted to the Japanese market simply because US funds, facing withdrawals at home, sell *also* Japanese stocks. Moreover, if as it has been in general argued, international fund managers are more likely to have more information about domestic assets than foreign ones (e.g., Brennan and Cao, 1997), they would not only sell foreign stocks in equal proportion to the domestic ones, but would mostly sell them. Indeed, the funds have a preference to specialize in the assets in which they have a higher informational advantage (e.g., Van Nieuwerburgh and Veldkamp, 2009).

However, the picture would change in the case in which something increases the informational advantage of the international investors and tilts their incentives to sell international assets. In this paper, we will argue that this is represented by the inside information that funds affiliated with banks derive from their lending. More specifically, some major international institutional investors belong to the same financial conglomerates that also own the banks that participate in the lending market and perform due diligence on the borrowers. If affiliation with a bank provides the institutional investors with inside information acquired from the lending activity of the affiliated bank to select stocks, this will reduce their incentive to sell the assets in which they have superior information, regardless of whether they are located abroad. In other words, the informational advantage arising from the lending relationship may overcome the informational disadvantage of investing in foreign assets. If bank affiliation reduces the incentive to sell and does actually offset it, this would slow the transmission of the crisis for the stocks of the firm to which the affiliated bank is lending.

The implications are stark. Asset managers affiliated with banks would normally trade as insiders. Indeed, bank loans provide inside information that turns the bank into an insider (Kahn and Winton, 1998). This in general would be detrimental to the liquidity and equilibrium conditions of the assets in which they invest. Indeed, the privileged information of the commercial bank and its potential to impact the borrower's stock price by trading through its asset-management arm increases information asymmetry and adverse selection for the investors in the borrower's stock. This creates disincentives for other investors to trade in this stock, thus lowering its liquidity. Therefore, in normal times, bank-related ownership exacerbates the information asymmetry of the firm's stock, raises its illiquidity and

makes the stock more subject to private information-related trade - e.g., short selling. This will likely increase stock volatility and skewness as well as the extreme realizations of its returns.

However, at times of crises, the effect would change quite drastically. Indeed, in the midst of fire sales, all else equal, fund managers with superior information will just sell the assets in which they have less information and retain the ones in which they have more information. The effect of this behavior is even stronger in the case in which stock price gyrations are less related to fundamentals and more related to liquidity-induced trade. In this kind of situation, insiders, by the very fact that they have available more and better information, are less likely to sell. This effectively makes the insiders to support the price of the stock and increases its liquidity. Therefore, during the crisis, insiders are likely to increase stock, reduce insider trading and therefore lower stock skewness and probability of extreme realizations of returns.

This induces a trade-off between better price support during crises and greater information asymmetry (or lower stock liquidity) in normal times. While the literature so far has not focused on this trade-off, we argue that it is of great significance, particularly because of its implications for the development of financial markets. The major focus of this paper is to study this trade-off. We study this issue by focusing on the behavior of international asset managers around the recent financial crisis. We use complete data on international mutual funds and international stocks over the period 2000-2009.

We start by looking at the evolution of foreign ownership and foreign ownership composition around the 2008-2009 global financial crisis and before. We show that overall foreign institutional ownership retrench during the crisis. In particular, the overall drop in foreign ownership can be mostly explained in terms of investment advisors' ownership and mutual fund ownership. In contrast, bank-managed funds ownership increases. In other words, while most of the institutional investors (investment advisors and non-bank managed funds represent the biggest part of foreign ownership at the beginning of the crisis) sell, only bank-managed funds do not sell and actually increase their stake.

We then test whether bank-managed funds do indeed have higher information the recent findings on US data showing that information is shared between the divisions of financial conglomerates (e.g., Aggarwal, Prabhala, and Puri, 2002, Schenone, 2004, Drucker and Puri, 2005, Ritter and Zhang, 2005, Acharya and Johnson, 2007, Massa and Rehman, 2007, Seyhun, 2007). We argue that at the international level fund managers use the inside information acquired from the lending activity of the affiliated bank to select stocks. We provide two sets of tests: the first is based on the relation between CDS spread behavior and stock behavior (Acharya and Johnson, 2007), while the second is based on the holdings in the fund portfolio (Massa and Rehman, 2007).

For the first test, we ask whether the stocks in which affiliated funds invest do have a higher correlation between change in CDS spreads and stock prices. This test is based on the idea (Acharaya and Johnson, 2007) that if bank-managed funds are indeed insiders, we should find a higher correlation between the CDS market - in which clearly banks have higher information - and the stock market. And indeed, we find that the stocks held by bank-managed funds display a higher correlation between CDS and equity market. Then, we look more in detail at the portfolio of the bank-managed funds and show that affiliated fund deliver a lower higher performance on the stocks to which the affiliated banks lends than on the other non-lent stocks in the portfolio. Overall, these findings consistently point in the direction of the bank-managed funds to be insiders. Fund managers condition their investment activity on the lending decisions of their affiliated banks.

Next, we look at the relationship between bank-managed funds' ownership and the transmission of information. We first show that the contemporaneous trades by bank-managed funds, being these privy to inside information, are more correlated to change in prices than those of otherwise similar trades by non bank-managed funds. Second, we show that the effect is mostly concentrated among the bank-managed funds whose affiliated banks have closer lending relations. Third, we show that given that the information the bank-managed funds are privy to originates from the lending relationship with the affiliated bank, when their trade, their price impact is permanent and does not mean-revert (Campbell, et al., 1993, Llorente, et al., 2002).

Next, we focus on how the behavior of the bank-managed funds affects the market during the crisis. We relate the degree of illiquidity of the stock to the ownership by bank-managed funds. We show that bank-managed funds' ownership is positively related to illiquidity before the crisis and negatively related during the crisis. Over the entire sample the effect is null. Bank-managed funds' ownership increases illiquidity before the crisis and reduces it during the crisis. This behavior is very different from that of other institutions for which the effect of ownership is always positive on illiquidity, both before and during the crisis. More specifically, stocks that display higher bank-managed funds' ownership before the crisis experience a bigger drop in illiquidity during the crisis.

We then further investigate the relationship between the trading by foreign bank-managed funds and the stock price informativeness. We use R-squared of the regression of stock returns on market returns as proxy for informativeness - i.e., the lower the R-squared, the higher the stock-specific informational content. We find a strong negative relation between R-squared and institutional ownership. This negative relationship is much stronger for the case of foreign bank-managed funds than for any other ownership. This suggests that bank-managed funds' ownership is related to the prices of the stocks being more related to firm specific information.

Then, we relate bank-managed funds' ownership to the extreme variations and short-selling behavior. We focus on the risk of stock price crash as well as skewness. We show a strong positive correlation between bank-managed funds' ownership and both negative skewness and the likelihood of having extremely low returns before the crisis.

Given that these extreme fluctuations are typically there in the case of an intensive activity by short-sellers, we investigate whether bank-managed funds' ownership is related to short-selling behavior. We therefore relate foreign bank-managed ownership to shifts in short-selling demand. We adopt the methodology of Cohen et al. (2009) and estimate the upward and downward shifts in short-selling demand. We find a strong positive relationship between foreign bank-managed ownership and short-selling. A higher bank-managed funds' ownership is related to higher short-selling. This suggests that in general bank-managed ownership makes stocks more subject to short-selling activity and increases their extreme realizations.

However, as the crisis hits the situation changes. The relationship between ownership and extreme realizations is now negative and significant. A higher bank-managed funds' ownership is related to a lower negative skewness and lower likelihood of having extremely low returns. Also, the effect on short selling reverts and foreign bank-managed ownership is actually negatively related to short-selling. A higher bank-managed funds' ownership is related to lower short-selling. This suggests that bank-managed funds' ownership is inducing more extreme variations in general, but during the crisis, given that the behavior is less related to fire sales, its information-driven behavior helps to stabilize the price.

Overall, these findings provide novel and valuable knowledge base for the anatomy of financial crisis in the international markets. We believe they contribute to our understanding of the relative importance of various causes of the crisis and what amplified the magnitude of the crisis, such as incentives, limits of arbitrage, withdrawal risks, informational channels within conglomerates, and mark-to-market accounting rules.

In particular, our paper makes several contributions. First, it provides evidence at the international level of the existence of transfer of information within international conglomerates and of breach of Chinese Walls on an international scale. However, unlike what it has been argued from many sources, it is not the case that the benefits accrue to the investment banking side, but to the asset management side. In other words, it is not the case that the funds of the group are used to support firms with a lending relationship with the affiliated bank. Quite the contrary, the funds exploit the information of the affiliated banks to improved their performance. This confirms the evidence available for the US (e.g., Massa and Rehman, 2007) and is in contrast with the fears that the "European system" based on a strict relationship between banks and asset management may be detrimental to the investors.

Second, we show the implications for the firms borrowing from banks affiliated with mutual funds. Indeed, our evidence points more in the direction of insider trading and shows the negative implications for the firms borrowing from the financial conglomerates as they will bear the negative impact of the resulting information asymmetry on their stock's liquidity. And indeed, we show that this is the case. Although there is a wide literature on the implications of the conflicts of interest due to underwriting or consulting activities of investments banks around M&A deals, IPOs, and bond-issues have been highlighted in the literature (e.g., Puri, 1996, Ritter and Zhang, 2005, and Schenone, 2004), and the debate about allowing asset managers and commercial lending to be under the same roof has acquired even bigger relevance now, still the implications for the liquidity of the firms and the stability of the markets, have not yet been properly analyzed. We contribute to this debate along two dimensions. First, we show the liquidity implications of the adverse selection effect of insider trading. The adverse-selection effects generated by banks reduces liquidity and diminishes stock-market participation. Second, this negative effect is compensated by their positive effect during crises.

Third, our results also contribute to the literature on liquidity. We show how at the international level the lending dimension reduces liquidity during normal times, but increases it in bad times. Previous studies have documented a liquidity impact of internal monitoring by block-holders (e.g., Coffee, 1991, Bhidé, 1993), following IPO underwritten by a financial conglomerates (e.g., Ellis, Michaely, and O'Hara, 2000, Schenone, 2004), related to lending (Dass and Massa, 2008). However, to our knowledge, we are the first to show that bank-affiliation can actually help to reduce the effects of the crisis.

Fourth, our results also contribute to the literature on mutual fund families. (e.g., Mamaysky and Spiegel 2002, Nanda et al., 2003, Massa, 2003, Gaspar et al. 2006, Guedj and Papastaikoudi, 2004). We contribute by broadening the analysis and considering the overall financial organization that the mutual fund family may be part of. We show that being part of a lending group helps the fund to generate higher performance.

Finally, we contribute to the literature on differential information in international markets (e.g., Brennan and Cao, 1996). We show how one major source of information in the international dimension is provided by the lending ties between countries and how this has both a positive influence during the crisis and a more generic negative one.

We think our evidence has also important normative implications contributing to the overall debate on financial intermediation and the distinction between bank-based and market-based systems. Indeed, banks can actually impact the stability of the system even in a markets-based system. However, the channel of influence is quite different with respect to the traditional one advocated in the banks-based model.

The remainder of the paper is organized as follows. In Section II, we provide some testable restrictions. In Section III, we describe the data and the construction of the main variables. In Section IV, we provide preliminary evidence on the behavior of bank-managed funds around the crisis. In Section V, we test whether bank-managed funds derive information from their lending relationship. In Section VI and VII, we test the link between bank-managed fund ownership and information transmission in the stock market and stock liquidity, respectively. In Section VIII, we look at the role played by bank-managed fund ownership and extreme realizations of stock returns. A short conclusion follows.

II. Testable Hypotheses and Empirical Specifications

We now consider a framework that allows us to lay out our hypotheses. We start from the fact that many asset managers belong to broader financial conglomerates that also exercise other activities, such as banking. Affiliation with a financial conglomerate provides access to more resources - e.g., research, ability to invest at a low cost. The fund manager can also use the inside information acquired from the lending activity of the affiliated bank to select stocks. Knowledge of private trading, confidential reports, and presentations to bankers' meetings can help to know whether to invest in the firm. Investors in a public company, by contrast, receive only quarterly reports. If a firm considers whether to refinance debt or secure financing for a merger or acquisition, it may share those intentions with the lenders. It has been documented that in the US in the last decade the percentage of hedge funds participating in lending syndicates has reached 20%. Arguably one of the main advantages for a hedge fund is access to the inside information of the syndicate.

While, transfer of such information from the lending arm to the investment arm of the financial conglomerate is either explicitly forbidden ("Chinese Walls") or strongly discouraged, evidence is ripe that this happens even in the most transparent and better regulated market in the world: the US. For example, Lipson and Puckett (2004) find that institutional investors receive tips regarding the content of forthcoming analysts' reports, Ritter and Zhang (2006) show that lead underwriters allocate hot initial public offerings (IPOs) to affiliated funds, Massa and Rehman (2007) show that mutual funds benefit from the information transferred by the lending arm. Acharya and Johnson (2007) describe how information derived in the fixed income/lending side flows into the equity side. Seyhun (2007) shows that when an investment banker joins a firm's board of directors, profitability from insider trading decreases. The fact this effect is reversed after the end of the investment banker's term on the board suggests evidence of ineffectiveness of the "Chinese Walls". Evidence also exists of the relationships between underwriting and commercial banks (e.g., Aggarwal, Prabhala, and Puri, 2002, Schenone, 2004, Drucker and Puri, 2005). This shows that the lending divisions of the conglomerate

pass on information about the borrowing firms to their affiliated asset managers and the affiliated asset managers exploit it to enhance their performance.

We focus on a specific set of information: the one acquired through the lending activity. We argue that the privileged information of the commercial bank and its potential to impact the borrower's stock price by trading through its asset-management arm may increase information asymmetry and adverse selection for the investors in the borrower's stock.

We consider three sets of testable restrictions. First, we assess whether the fund managers affiliated with banks have superior inside information. We argue that the mutual funds affiliated with lending banks receive a transfer of information from them. This translates in higher performance. This leads to the first hypothesis.

H1: The bank-managed funds derive superior information from the lending of the affiliated bank.

We consider this hypothesis against the alternative of no role played by affiliation as well as the possibility of a "support role". Indeed, affiliation with a conglomerate may constrain the fund manager and reduce his freedom to maneuver. The fund manager may be required to pursue the interests of the group at the expense of those of the investors, for example, by loading up on stocks of firms to which the banking arm of the group is lending in order to support the stock price of these firms.

Next, focus on the effect of bank-managed ownership on stock returns. The fact that the fund manager can use privileged information makes it an insider. The insider potential of the bank is related to the ability to exploit the inside information that it acquires through lending, in the equity market. This will increase insider trading in the stocks. This will however also create disincentives for other investors to trade in this stock. We argue that this does in general increase illiquidity and makes the stock more subject to extreme return realizations. This leads to the second hypothesis.

H2: The bank-managed funds by acting as insiders reduce the liquidity of the stocks in which they have a stake, increases insider trading and makes the stock return more subject to extreme realizations.

This investment behavior of the affiliated fund managers should also distort the transmission mechanism around the crisis. We know that shocks in one region are transmitted to other regions through the common ownership by international investors. This is due to two effects. First, in the case of a crisis mutual funds have to sell to meet withdrawals from their customers. All else equal, they would sell both domestically and internationally. However, the international fund managers are more likely to have more information about domestic assets than foreign ones (e.g., Brennan and Cao, 1997). They would therefore not only sell foreign stocks in equal proportion to the domestic ones, but would mostly sell them. Indeed, the funds have a preference to specialize in the assets in which they have a

higher informational advantage (e.g., Van Nieuwerburgh and Veldkamp, 2009). Therefore, these two concomitant effects have been brought forward to explain the foreign sales by international investors during the crisis. If institutional investors rush to sell their assets worldwide in an effort to generate cash that is required to meet redemption claims, this makes stock prices gyrations less related to fundamentals and more related to noise trading.

However, if bank affiliation provides an informational advantage that more than offset the one due to geography, this will reduce the fund incentive to sell the assets in which they have superior information, regardless of whether they are located abroad. This would slow the transmission of the crisis for the stocks of the firm to which the affiliated bank is lending. Insiders, by the very fact that they have available more and better information, are less likely to sell. This effectively makes the insiders to support the price of the stock and reduces insider trading. We argue that this does in general increase illiquidity and makes the stock less subject to extreme return realizations. Therefore, during the crisis, insiders are likely to increase its liquidity, reduce insider trading and make the stock less subject to extreme return realizations. This leads to the third hypothesis.

H3: During a crisis the bank-managed funds increase liquidity, reduces insider trading and makes the stock return less subject to extreme realizations.

This induces a trade-off between better price support during crises and greater information asymmetry (or lower stock liquidity).

III. Data and Variables Construction

We now describe the different sources of the data and the construction of our main variables. Data on holdings come from the Factset/Lionshares database (2000-2009), which provides portfolio holdings for institutional investors worldwide. This dataset contains holdings at the investor stock level of over 7,140 institutions in 73 countries, with positions totaling US\$18.29 trillion as of December 2008. FactSet/LionShares compiles institutional ownership from public filings by investors (such as 13-F filings in the US), company annual reports, stock exchanges, and regulatory agencies around the world. Institutions are defined as professional money managers, including mutual fund companies, pension funds, bank trusts and insurance companies. Overall, institutional ownership represents over 40% of the total world stock market capitalization in our sample period. We consider all types of stock holdings (common shares, ADR, GDR and dual listings). We handle the issue of different reporting frequency by institutions from different countries by using the latest available holdings update at quarter-end.

The reporting frequencies of institutional holdings data from Factset Lionshares are quarterly, semi-annual, or annually. For instance, Japan institutional holdings are based on annual frequency, while the U.S. reports regularly on a quarterly basis. We choose the semi-annual end holdings. We require the funds to be fully invested in equity – i.e., the total amount invested in equity should not be lower than 95% of the total net asset value – and international – i.e., the total amount of foreign equity has to be more than 50%.

In Table I, we report descriptive statistics on the level of institutional ownership in different countries. In Panel A, we report the mean and standard deviation of foreign ownership by country, at the end of December 2007. We define as "foreign ownership" the ratio between the level of foreign investor holdings and the year-end market capitalization of the stock. We include all the fund holdings based on the last reporting dates. For each country, we report both the equal-weighted average foreign ownership and the value-weighted foreign ownership weighed by stock market capitalization.

It is worth noting that, as Dahlquist, et al., (2003) noted, the percentage ownership does under-represent the true impact of foreign ownership. Indeed, a significant fraction of the capital of the firm is tied down in the controlling stake. This can be in the hand of the state as well as families or private entities. This part will contribute less to determine the daily stock price and would for sure be less relevant things like volatility and liquidity. The really relevant ones is the percentage of floating. Therefore, in column (5), we also report the floating adjusted value-weighted foreign ownership. This is calculated by rescaling market capitalization to adjust for the percentage of not closely held shares, as reported in Table 1 of Dahlquist, et al., (2003). We can see quite a significant cross-sectional variation in the percentage of ownership.

In Panel B, we provide a more detailed breakdown of the data in terms of the number of funds under management and total foreign holdings by the type of institutions at the end of December 2007. Factset/LionShares classify professional money managers into the following investor types: investment advisor, bank management division, mutual fund manager, insurance management division, hedge fund company, private banking portfolio, pension fund, insurance company, venture capital, fund distributor, arbitrage, Foundation/Endowment and Corporate. For each type of institutions, we report the total number of funds under management and the total foreign holdings in billions of US dollars. We also report separately for institutions located in the North-American region (Canada and US) and for institutions outside of the North-American region.

We can see that the biggest category of fund managers are the investment advisors (10,657), followed by the bank management divisions (8,242) and the independent mutual fund managers (5,093). While the percentage of assets managed by US mutual funds is higher than that of asset managed by US banks (61 bn compared to 776 bn), out of the US, the percentage of assets managed

by mutual funds is way lower than that of asset managed by banks (295 bn compared to 789 bn). This is consistent with the intuition that the fund-management industry outside the US is bank-based, while in the US it is more independent of banks.

In Panel C, we provide a breakdown of foreign ownership by country, as of the end of December 2007. Using the Factset classifications of foreign investors as reported in Panel B, we calculate the fraction of foreign holdings managed by the type of managing institutions. For each country, we report the mean and standard deviation of bank-managed fraction, the mean of investment advisor-managed fraction, mutual fund managed-fraction and the fraction managed by other type of investors. Bank managed fraction is defined as the holdings by bank asset management division divided by the total foreign holdings. The other fractions are calculated likewise. We can see that the percentage of bank-managed funds range from 8% in Argentina to 42% in Poland, with quite a significant cross-sectional deviation.

The firm-level stock market data are drawn from Datastream for non-US stocks and CRSP for US stocks. We combine Datastream data with the institutional holdings data from FactSet using SEDOL codes (only for non-U.S. firms), and ISIN codes. We use CUSIP to merge institutional holdings data with US security data from CRSP.

The information on the bank loans comes from Loan Pricing Corporation's (LPC) *DealScan* database. We pick all loan contracts over the period. These data not only provide information about provide information about the loan (e.g., the date when the contract is effective, the tenor of the loan, and the location of the borrowing firm at the time of the loan contract), but also the identification of the lender. Next, we construct international conglomerates by identifying the affiliation between commercial lenders ex LPC and institutional investors ex Factset Lionshare. The name-matching is first done using an algorithm designed for this purpose and then further enhanced by manually searching for the LPC-banks. For each financial group we have information about its location.

In Table II, we provide some summary statistics of firm-level variables. For each variable we report the data source, mean, median, standard deviation and number of observations. The main variables are similar to what the literature has reported (e.g., Lau, et al., 2010).

IV. Foreign Ownership Behavior Around the Financial Crisis

We start by looking at the evolution of foreign ownership and foreign ownership composition around the 2008-2009 global financial crisis. For each year from 2006 to 2009, we report the level of year-end foreign ownership. Foreign ownership is defined as foreign investor holdings divided by the year-end market capitalization of a stock. We also report separately the proportion of foreign ownership

managed by bank management division, investment advisor, mutual fund manager and other institution types. Both two tailed T-test and Wilconxon rank-sum test are performed to test the differences in foreign ownership and foreign ownership composition across years.

We report the results in Table III. In Panel A, when calculating foreign ownership and ownership composition, we include all fund holdings as of the last report date of the institution. We include those institutions which report their holdings at least once in each of the four years. In Panel B, we only focus on those institutions with last reporting date on Dec 30 or on Dec 31 of each year.

The results show that overall foreign institutional ownership retrenches during the crisis. In particular, the percentage ownership drops. However, while the investment advisors' ownership and mutual fund ownership drops, bank-managed funds ownership increases. In other words, while most of the institutional investors (investment advisors and non-bank managed funds represent the biggest part of foreign ownership at the beginning of the crisis) sell, only bank-managed funds do not sell and actually increase their stake. Similar results hold in case we use, instead of just foreign ownership as of the reporting data before 2007, we only concentrate on the funds with last reporting date on Dec 30 or on Dec 31 of each year.

These results represent our starting point and show that there is a clear difference in behavior between bank-managed funds and the rest of the institutional investors. We now move on to see whether this is just an accident or reflective of a specific behavior of bank-managed funds related to their information characteristics.

V. Does Bank Affiliation Provide Inside Information?

We start by testing the first hypothesis: bank-managed funds derive superior information from the lending of the affiliated bank. As we argued, bank-managed funds are privy to superior information that is related to their affiliation with a bank. We now test whether this affiliation does indeed bring with it an informational advantage. In other words, we test whether bank affiliation provides superior information. We consider two tests. The first test is based on the idea (Acharaya and Johnson, 2007) that if bank-managed funds are indeed insiders, we should find a higher correlation between the CDS market - in which clearly banks have higher information - and the stock market. It provides a direct test of overall informativeness of bank-managed funds. The second test is based on the holdings, within the portfolio of the same fund, of the stocks to which the affiliated banks lend and the others. It provides a more specific test of informativeness related to the assets in which bank-managed funds are more likely to be informed.

A. Inside Information and CDS/Stock Correlation

We start by providing an overall test of informativeness of the bank-managed funds. We start from the evidence documented in Acharya and Johnson (2007) that informed banks with lending relationships use non-public information in the credit default swap (CDS) market. Our purpose is to examine the comovement between the CDS changes and the stock returns and link the comovement with foreign bank-managed ownership. Therefore the test is based on the idea (Acharya and Johnson, 2007) that if bank-managed funds are indeed insiders, we should find a higher correlation between the CDS market - in which clearly banks have higher information - and the stock market.

We proceed in the following steps. First, we obtain daily CDS spreads for international bond issuers from Markit. We only use 5-year maturity contracts as they are the most liquid. We calculate the daily percentage change in CDS spread for each contract and then calculate the average change for each firm across different currencies and restructuring clauses. Second, we perform name matching to match the names of bond issuers from Markit with the stock names from Factset. We are able to identify 1678 matches out of 5494 bond issuers names from Markit. Next, for each stock-year, we calculate the comovement between CDS changes and stock returns by regressing daily stock returns on CDS changes and local market returns (without constant) and take the coefficient on CDS changes as the dependent variable.

We report the results in Table IV, Panel A. In Panel A1, we link the comovement between CDS changes and stock returns with foreign bank-managed ownership. All variables on the right-hand side are taken at the beginning of the year. Column (1) and (2) are based on the full sample. Column (2) includes both industry-fixed effects and country-year fixed effects. Column (3) is for the non-crisis period from 2002 to 2007. Column (4) is for the crisis period from 2008 to 2009.

We find a strong positive relationship between comovement between stock returns and CDS changes and bank managed fund ownership. This holds across all the specifications and is very economically significant. One standard deviation higher bank managed fund ownership is related to a higher correlation between stock returns and CDS. This result is consistent with the Acharya and Johnson (2007) one and provide additional evidence that the bank-managed funds are indeed the informed ones.

Next, we look at whether this relationship is stronger for the stocks with lending relationships with funds affiliated with lending banks. In Panel A2, we focus on the borrower subsample (the match between Factset and LPC Dealscan), and decompose foreign bank ownership into two parts: high-lending relationship ownership, representing the holdings by foreign investors from countries with high-lending relationship with the stock, and low-lending relationship ownership, representing the holdings by foreign investors from countries with low-lending relationship with the stock. We use the same specifications as in Panel A1. In the interest of brevity we only report the variables of interest.

The results show that the relationship between comovement between stock returns and CDS changes and bank managed fund ownership is strengthened in the case the company has borrowed from affiliated banks. This holds across all the specifications and is very economically significant. A higher bank-managed funds' ownership is related to a higher correlation between stock returns and CDS.

B. Inside Information and Holdings

We now focus directly on the stocks held by the affiliated funds. We employ the same methodology as Coehen et al., (2008) and compare the performance of the portfolio made of the "borrowing stocks" to the performance of the portfolio made of the "non-borrowing stocks". That is, we ask whether the return the affiliated funds obtain from their holdings in borrowing stocks is higher than that they derive from otherwise similar non-borrowing stocks. In the presence of privileged information, we expect the performance of the funds' positions in borrowing stocks to be greater than that of the funds' positions in non-borrowing stocks located in the same industry about which the fund managers need not possess privileged information.

This test has the advantage of directly focusing on the stocks within the portfolio of the fund, controlling for any other fund-specific characteristics - e.g., managerial ability. Also, this test better controls for the possibility that mutual fund holdings predict stock returns. Using the other ("non-borrowing") stocks of the fund as control any fund specific effect would cancel out. Moreover, it avoids us analyzing the performance of the entire fund. Given that the behavior of few borrowing stocks need not have a discernable impact on the performance of the entire fund, a test directly based on the performance of the fund may lack power.

We therefore proceed as follows. We match all the funds in the sample with the banks. We use a name matching algorithm to match the stock names from Factset with the borrower names from LPC Dealscan. We are able to identify 6,580 confident matches out of 48,865 stock names from Factset. This is our "borrower" subsample. For each stock i in the borrower subsample, we define a country j as a high-lending relationship country, if the bank loans lent by country j 's lenders are above the median lending amount among stock i 's current borrowing countries. The rest of countries are defined as low-lending relationship country.

Then, for each bank-managed managing firm located in country j , we examine its quarter-end portfolio holdings. We create two value-weighted portfolios: high-lending relationship portfolio and low-lending relationship portfolio. The high-lending portfolio consists of stocks with high-lending relationship with country j , while low-lending portfolio is formed of stocks with low-lending relationship with country j . Next, we construct the portfolio buy-and-hold returns over the next quarter

and calculate the difference in returns between the high-lending relationship portfolio and the low-lending relationship portfolio. The portfolios are rebalanced at the beginning of every quarter. Then, we run a pooled regression of regressing difference in returns (high lending portfolio minus low lending portfolio) on risk factors. We employ both a 4-factor model and an 8-factor model. The data on domestic and international risk factors from 2002 to 2009 are obtained from Sandy and Hau (2010), Sandy et. al. (2010). We use an 8-factor model with 4 domestic factors (market factor, hml, smb and momentum factor) and 4 international factors (international market factor, hml smb and momentum factor), as used in Sandy et al. (2010).

The results are reported in Table IV, Panel B1 and B2. In Panel B1, the sample period is the non-crisis period from 2002 to 2007. In Column (1), we include 4 international risk factors, and we add 4 domestic risk factors in column (2). In column (3) and (4), we require that the number of quarterly difference in portfolio returns must be above 20 to be included in the regression. Panel B2 follows the sample specifications as in Panel A1 but it is for the crisis period from 2008 to 2009.

We find that the before the crisis the high-lending relationship portfolios overperform the low-lending relationship portfolios. The difference is not only statistically significant but also highly economically relevant. This provides evidence in favor of our first hypothesis. Then we look at the crisis (Panel A2). There, we see that it still the case that the high-lending relationship portfolios overperform the low-lending relationship ones. The difference is both statistically significant and economically significant relevant. However, the magnitude during the crisis drop, suggesting that during a time in which prices are mostly driven by fire sales, the ability of the bank-managed funds to deliver higher performance is lower.

Overall, these results suggest that funds enjoy an informational advantage from exploiting lending-based information. This provides evidence in favor of our first hypothesis. These findings consistently point in the direction of the affiliated funds to be insiders. Fund managers condition their investment activity on the lending decisions of their affiliated banks.

VI. Bank Managed-Fund Behavior and Information Transmission

The previous analysis has provided evidence that the bank-managed funds enjoy an informational advantage and act as insiders. We now look at the effect of this behavior on the stock market. We test the second and third hypothesis. That is, we look at whether the bank-managed funds by acting as insiders reduce the liquidity of the stocks in which they have a stake in general and, whether during a crisis the bank-managed funds increase liquidity and provide price support.

We start by focusing on the relation between stock returns and sales by institutional investors. We first focus on the contemporaneous relationship and then look at the future returns. The intuition is that insiders' trades should be very highly related to contemporaneous stock returns and not related to future stock returns. Indeed, the trade of the insider, being very informationally loaded should impact the price. The information will be impounded in them and prices will not mean revert. In contrast, non-informationally loaded trades will affect stock returns only temporarily and then will mean revert (e.g., Campbell, et al., 1993, Llorente, et al., 2002).

These considerations suggest three restrictions. First, given that bank-managed funds are privy to inside information, we expect that as they trade prices will adjust more than for otherwise similar trades by non bank-managed funds. Second, given that the information the bank-managed funds are privy to information that originates from the lending relationship with the affiliated bank, we expect the effect to be mostly concentrated among the bank-managed funds whose affiliated banks has lent to the specific company. Third, given that this is fundamental information about the company, we expect no mean reversion - i.e., no correlation between the trades and future returns.

To test these hypotheses, we regress abnormal stock returns on changes drop in foreign ownership as well as a set of control variables. Given that most institutions report their holdings semi-annually, we use semi-annual frequency. For each stock-half year, we calculate the drop in bank-managed (non bank managed) foreign ownership from the beginning of the half year to the end of half year. As before to calculate abnormal stock returns, we use an 8-factor model with 4 domestic factors (market factor, hml, smb and momentum factor) and 4 international factors (international market factor, hml smb and momentum factor), as used in Sandy et al. (2010). We use the monthly stock returns from 2002 to 2005 (the training period) to estimate the factor loadings. The detailed procedure is described in the Appendix. The control variables are defined as above. All firm-level accounting variables are taken at the beginning of the year. We cluster the errors are the firm level and include industry and country-year fixed effects.

We report the results in Table V. In Panels A and B, we focus on the contemporaneous abnormal returns over the half year, while in Panel C, we focus on the abnormal return in the next half year as the dependent variable. Column (1) and (2) are based on the full sample. Column (2) includes both industry-fixed effects and country-year fixed effects. Column (3) is for the non-crisis period from 2006 to 2007. Column (4) is for the crisis period from 2008 to 2009.

The results in Panel A show a strong negative correlation between change in price and drop in ownership for both the bank-managed funds and the non bank-managed funds. The effect is very significant. In the case of the bank-managed funds, one standard deviation higher drop in sales is related to a drop in price. This holds for the different types of institutions and for before and during the

crisis however, the economic significant for the bank-managed funds is higher than in the case of non bank-managed funds. The difference is always statistically significant. This supports our first hypothesis: the correlation between change in prices and returns is stringer for bank-managed funds than for non- bank-managed funds.

Next, we decompose the drop in foreign bank ownership into two parts: drop in high-lending relationship ownership and drop in low-lending relationship ownership. The former represents the drop in holdings by foreign investors coming from countries with high-lending relationship with the stock, while the latter represent the drop in holdings by foreign investors coming from countries with low-lending relationship with the stock. The results (in Panel B) are striking. All the explanatory power is concentrated in bank-managed funds from high-lending relationship. This supports our second hypothesis: the effect is mostly concentrated among the bank-managed funds whose affiliated banks has lent to the specific company. It is worth noticing that in the analysis we are not making any causality statement, but we are just arguing in terms of correlation as predicted by theory (e.g., (Campbell, et al., 1993, Llorente, et al., 2002).

Finally, we look at the relationship with future returns. The results (in Panel C) show no evidence of mean reversion in case of bank-managed funds. This is consistent with our third hypothesis of no mean reversion. In contrast, in the case of non bank-managed funds, the effect is clearly mean reverting in the following six months during the crisis. This suggests that, as we argued before, the non bank-managed funds are more likely to trade during the crisis on the basis of fire-sales based motivations and therefore the effect of their trades is non informative.

VII. Bank Managed-Fund Behavior and Stock Illiquidity

Next, we focus on how the behavior of the bank-managed funds affects the market during the crisis. We relate the degree of illiquidity of the stock to the ownership by bank-managed funds. We start by regressing the degree of stock illiquidity on foreign bank-managed ownership as well as a set of control variables defined as before. The dependent variable is the Amihud illiquidity measure estimated using daily stock returns and trading volumes over the year. All firm-level accounting explanatory variables are taken at the beginning of the year. We cluster the errors are the firm level and include industry and country-year fixed effects.

We report the results in Table VI, Panel A. Column (1) and (2) are based on the full sample. Column (2) includes both industry-fixed effects and country-year fixed effects. Column (3) is for the non-crisis period from 2001 to 2007. Column (4) is for the crisis period from 2008 to 2009. The results show that bank-managed funds' ownership is positively related to illiquidity before the crisis and

negatively related during the crisis. Over the entire sample the effect is null. A higher bank-managed funds' ownership increases illiquidity before the crisis and reduces it during the crisis. This behavior is very different from that of other institutions for which the effect of ownership is always positive on illiquidity, both before and during the crisis.

To look more in detail around the crisis, we regress the change in Amihud illiquidity around the crisis period on the pre-crisis foreign bank-managed ownership. We report the results in Panel B. In column (1) and (2), the dependent variable is the change in Amihud illiquidity from 2008 to 2007. In column (3) and (4), we first calculate the average illiquidity in 2008 and in 2009, then calculate the difference with respect to the illiquidity in 2007.

The results display a very strong and negative relationship between bank-managed funds' ownership before the crisis and change in illiquidity around the crisis. Stocks that display higher bank-managed funds' ownership before the crisis experience a bigger drop in illiquidity during the crisis. The result holds across the different specifications and it is not only statistically but also economically strong. A higher bank-managed funds' ownership before the crisis reduces illiquidity during the crisis. No effect is there for other foreign ownership. In contrast, it is interesting to note that a similar effect exists for the case of domestic ownership. This is consistent with the intuition that more informed investors tend to provide liquidity during the crisis as they do not act as uninformed sellers.

We further investigate this hypothesis by focusing on the relationship between the trading by foreign bank-managed funds and the stock price informativeness. We know from the literature that one proxy for stock specific informativeness is the R-squared of the regression of stock returns on market returns. The lower the R-squared, the higher the stock-specific informational content. We therefore expect a negative relationship between the stock trading of the institutional investors and the R-squared of the stock.

In particular, we follow the same specification as Piotrovsky and Roulstone (2004) and regress the R-squared of the stock returns estimated from a market model to the absolute change in ownership as well as a set of control variables. We decompose the absolute change in ownership into the ones of foreign bank-managed funds, the one of non foreign bank-managed funds and the domestic ownership.

The R-squared of the stock returns is estimated as follows. For a given stock-year, we regress the daily returns of the stock on the contemporaneous local market returns and calculate the R-squared of the regression. We use the absolute change in foreign (bank-managed) ownership from year t to year $t-1$ to proxy for the trading of institutions. We put the level of institutional ownership at year $t-1$ as additional control. We include industry-fixed effects and country-year fixed effects in all

specifications. We cluster the errors at the firm level and include industry and country-year fixed effects.

We report the results in Table VII. Column (1) is based on the full sample. Column (2) is for the crisis period from 2008 to 2009. Column (3) is for the non-crisis period from 2001 to 2007. Column (4) is for the non-crisis period from 2005 to 2007. The results support our working hypothesis, showing a negative relation between R-squared and institutional ownership. This is in line with Piotrovsky and Roulstone (2004) results. Even more importantly, the relationship between R-squared and institutional ownership is much stronger for the case of foreign bank-managed funds than for any other ownership. This confirms our working hypothesis.

VIII. Bank Managed-Fund Behavior and Stock Return Extreme Realizations

We now consider how bank-managed funds' ownership is related to the extreme variations and short-selling behavior. We therefore relate foreign bank-managed ownership to the risk of stock price crash as well as to short-selling behavior.

We start with the relation to extreme variations. We employ two measures to proxy for the stock price crash risk. The first measure is the negative stock return skewness measure (NCSKEW) of Chen et al. (2001) and the second is the likelihood of having extremely low returns. The negative stock return skewness measure (NCSKEW) is calculated for any stock-year, by taking the negative of the third moment of daily returns and dividing it by the standard deviation of daily returns raised to the third power. The likelihood of having extremely low returns is based on Hutton et al. (2009). For a given stock-year, we first calculate the log-transformed weekly returns by taking the natural log of one plus the actual weekly stock returns. Then, we define crash weeks as those weeks during which the log-transformed weekly return falls more than 3.29 standard deviations below the mean over the entire year. The measure on the likelihood of extremely low returns is a dummy variable that equals one if for a stock-year, the firm experiences one or more crash weeks, and zero otherwise.

We regress these variables on foreign bank-managed ownership. In the case of the likelihood of having extremely low returns, we estimate a probit model. We include industry-fixed effects and country-year fixed effects in all specifications and cluster the errors at the firm level. We report the results in Table VIII, Panel A, in the case of skewness and Panel B, in the case of the likelihood of having extremely low returns. Column (1) is based on the full sample. Column (2) is for the crisis period from 2008 to 2009. Column (3) is for the non-crisis period from 2001 to 2007. Column (4) is for the non-crisis period from 2005 to 2007.

The results show a strong positive correlation between bank-managed funds' ownership and both negative skewness and the likelihood of having extremely low returns before the crisis. A higher bank-managed funds' ownership is related to a higher negative skewness and higher likelihood of having extremely low returns. However, as the crisis hits the situation changes. The relationship is now negative and significant. A higher bank-managed funds' ownership is related to a lower negative skewness and a lower likelihood of having extremely low returns. The results are robust across specifications. They suggest that bank-managed funds' ownership is inducing more extreme variations. These are typically there in the case of an intensive activity by short-sellers. We therefore direct test it.

Next, we relate foreign bank-managed ownership to shifts in short-selling demand. We collect data from short-selling quantities and short-selling fees for international stocks from Data Explorer. We employ the same follow the same methodology as in Cohen et al. (2009) and estimate the upward and downward shifts in short-selling demand. For a given stock-month, we define an upward shift in the short-selling demand, if we see both the short-selling fee and short-sold quantity rise at the same time. The month is denoted as an upward-shift month. On the other hand, if we see both the short-selling fee and short-sold quantity fall at the same time, we say that there is a downward shift in the short-selling demand in the month, and the month is denoted as a downward-shift month.

Next, for each stock-year, we define a dummy variable that equals one if the number of upward-shift months is above the number of downward-shift months, and zero otherwise. This variable effectively proxies for the degree of short-selling activity informationally-motivated as Cohen et al. (2007) have defined it. An increase in this variable implies that the informationally-motivated short selling is more intense. We then estimate a probit regression of this measure on foreign bank-managed ownership. We include industry-fixed effects and country-year fixed effects in all specifications. We cluster the standard errors at the firm level.

We report the results in Table IX. Column (1) is based on the full sample. Column (2) is for the crisis period from 2008 to 2009. Column (3) is for the non-crisis period from 2001 to 2007. Column (4) is for the non-crisis period from 2005 to 2007. The results display a strong positive relationship between foreign bank-managed ownership and short-selling. A higher bank-managed funds' ownership is related to higher short-selling. However, during the crisis, the effect reverts and foreign bank-managed ownership is actually negatively related to short-selling. A higher bank-managed funds' ownership is related to lower short-selling. This is consistent with the previous results and suggests that foreign bank-managed ownership increases liquidity and reduces the probability of extreme price realizations also affecting the amount of informationally motivated short-selling in the market.

Conclusion

We study the role of international institutional investors in propagating financial market instability and the mediating role of the banking sector. We argue that the fact that some major international institutional investors belong to the same financial conglomerates with affiliated banks that participate in the lending market affects the way they react to the crisis. Affiliation with a bank provides the institutional investors with inside information acquired from the lending activity of the affiliated bank. This reduces the institutional investors' incentive to sell the assets in which they have superior information, regardless of whether they are located abroad. This slows the transmission of the crisis for the stocks of the firm to which the affiliated bank is lending.

We test three hypotheses. First, we assess whether the fund managers affiliated with banks have superior inside information. We argue that the mutual funds affiliated with lending banks receive a transfer of information from them. The bank-managed funds derive superior information from the lending of the affiliated bank. Second, the fact that the fund manager can use privileged information makes it an insider. This creates disincentives for other investors to trade in this stock, thus lowering its liquidity. We argue that this does in general increase illiquidity and raise the degree of asymmetric information about the stock. The bank-managed funds by acting as insiders reduce the liquidity of the stocks in which they have a stake. Then, we focus on how the investment behavior of the affiliated fund managers should also distort the transmission mechanism around the crisis. If bank affiliation provides an informational advantage that more than offsets the disadvantage due to geography, this will reduce the fund incentive to sell the assets in which they have superior information, regardless of whether they are located abroad. This would slow the transmission of the crisis for the stocks of the firm to which the affiliated bank is lending. We therefore argue that during a crisis the bank-managed funds increase liquidity and provide price support.

We study this issue by focusing on the behavior of international asset managers around the recent financial crisis. We use complete data on international mutual funds and international stocks over the period 2000-2009. We first test whether bank-managed funds do indeed have higher information. We show that affiliated funds deliver higher performance on the stocks to which the affiliated banks lends than on the other non-lent stocks in the portfolio. We also show that the stocks in which affiliated funds invest do have a higher correlation between change in CDS spreads and stock prices. (Acharaya and Johnson, 2007). These findings confirm that bank-managed funds are insiders.

Next, we investigate whether there is evidence of an impact of the bank-managed funds' insider position on the stock's secondary market liquidity. We show that stocks held by bank-managed funds display higher illiquidity in the equity market. Also, a higher bank-managed funds' insider stake is related to more short selling. Given that short-selling is informationally motivated, this suggests that indeed, bank affiliated ownership leads to more taking advantage of inside information. Moreover, we

find that the a higher bank-managed funds' insider stake display higher specific cash flow information. Indeed, a higher bank-managed funds' insider stake is related to higher idiosyncratic volatility and lower higher R^2 . Also, a higher bank-managed funds' insider stake is related to more extreme realizations of stock returns and higher skewness. This can be justified by the fact that a higher bank-managed funds' ownership leads to higher short-selling.

All of this changes as the crisis hits. Bank-managed funds' insider stake increases liquidity and reduce short-selling. The stocks of firms with higher bank-managed funds' insider stake are the ones that during the crisis experience a drastic increase in liquidity and lower short-selling. R^2 increases and the probability of extreme realizations as well as skewness drops.

Overall, these findings provide novel and valuable knowledge base for the anatomy of financial crisis in the international markets. We believe that these findings contribute significantly to our understanding of the relative importance of various causes of the crisis and what amplified the magnitude of the crisis, such as incentives, limits of arbitrage, withdrawal risks, informational channels within conglomerates, and mark-to-market accounting rules.

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Appendix: Variable Definitions

Foreign ownership: for a given stock-year, foreign ownership is calculated as foreign investor holdings divided by the year-end market capitalization. The data on global institutional holdings are drawn from the Factset/LionShares database.

Foreign bank-managed ownership: for a given stock-year, foreign bank managed ownership is calculated as foreign investor holdings managed by bank asset management division divided by the year-end market capitalization.

Foreign other institutional ownership: for a given stock-year, foreign other institutional ownership is calculated as foreign institutional holdings not managed by bank asset management division divided by the year-end market capitalization.

Domestic institutional ownership: for a given stock-year, domestic institutional ownership is calculated as the total domestic institutional holdings divided by the year-end market capitalization.

Missing domestic ownership dummy: it is defined as a dummy variable which equals 1 if the domestic institutional ownership is missing and 0 otherwise.

Log(market value): for a given stock-year, it is calculated as the log of year-end market capitalization of the stock.

Market-to-book: for a given stock-year, it is defined as the market value of the ordinary equity divided by the balance sheet value of the ordinary equity in the company.

Book leverage: for a given stock-year, it is defined as the ratio of the book value of total debt to the book value of total assets.

Profitability: for a given stock-year, it is defined as the ratio of earnings before interest, taxes, depreciation and amortization (EBITDA) to the book value of total assets.

ADR dummy: for a given stock-year, it is a dummy variable which equals 1 if the firm is cross-listed on a US exchange and 0 otherwise.

Return volatility: for a given stock-year, it is defined as the standard deviation of daily returns of the stock over the year.

Share turnover: for a given stock-year, it is the sum of trading volume over the year divided by the year-end market capitalization.

Log(number of analyst): for a given stock-year, it is the log value of the number of analysts covering the stock. If there is no analyst coverage, it is equal to 0.

Stock return: for a given stock-year, it is the cumulative return of the stock over the year.

CDS change - stock return comovement: for a given stock-year, it is defined as the comovement between daily

CDS changes and daily stock returns. We proceed in the following steps. First, we obtain daily CDS spreads for international bond issuers from Markit. We only use 5-year maturity contracts as they are the most liquid. We calculate the daily percentage change in CDS spread for each contract: $\% \Delta CDS_t = (CDS_t - CDS_{t-1}) / CDS_{t-1}$.

Then, we calculate the average daily percentage change across different currencies and restructuring clauses. Second, we perform name matching to match the names of bond issuers from Markit with the stock names from Factset. We are able to identify 1678 matches out of 5494 bond issuers names from Markit.

Next, for each stock-year, we run the following regression:

$$Ret_t = \beta_1 \% \Delta CDS_t + \beta_2 Mkt_t + \varepsilon_t,$$

i.e., by regressing daily stock returns on CDS changes and local market returns (without constant) and take the coefficient on CDS changes (β_1) to measure the comovement between CDS changes and stock returns.

Amihud illiquidity: for a given stock-year, it is defined as the average of daily Amihud's (2002) measure of price impact of trading over the year. It is calculated as:

$$Illiquidity_{i,t} = \frac{1}{D_t} \sum_{Days \in t} (1000 * \sqrt{\frac{|daily\ return|}{|daily\ dollar\ volume|}}),$$

where D_t is the number of days in year t.

Negative stock return skewness: For any stock-year, it is calculated by taking the negative of the third moment of daily returns and dividing it by the standard deviation of daily returns raised to the third power. It is defined as

$$NCSKEW_{it} = -(n(n-1)^{3/2} \sum R_{it}^3) / ((n-1)(n-2)(\sum R_{it}^2)^{3/2}).$$

Likelihood of extremely low returns: for a given stock-year, we first calculate the log-transformed weekly returns by taking the natural log of one plus the actual weekly stock returns. Then, we define crash weeks as those weeks during which the log-transformed weekly return falls more than 3.29 standard deviations below the mean over the entire year. The measure on the likelihood of extremely low returns is a dummy variable that equals one if for a stock-year, the firm experiences one or more crash weeks, and zero otherwise.

Downward Shift in Short-selling demand: for a given stock-year, we define a dummy variable that equals one if the number of downward-shift months in short-selling is above the number of upward-shift months in short-selling, and zero otherwise. We follow the same methodology as in Cohen et al. (2009) to estimate the upward and downward shifts in short-selling demand. For a given stock-month, we say that there is an upward shift in the short-selling demand, if we see both the short-selling fee and short-sold quantity rise at the same time. The month is denoted as an upward-shift month. On the other hand, if we see both the short-selling fee and short-sold quantity fall at the same time, we say that there is a downward shift in the short-selling demand in the month, and the month is denoted as a downward-shift month.

Table I
Summary Statistics of Foreign Ownership

Panel A: Foreign Ownership by Country

In Panel A, we report the mean and standard deviation of foreign ownership by country, at the end of December 2007. The data on global institutional holdings are drawn from the Factset/LionShares database. Foreign ownership is calculated as foreign investor holdings divided by the year-end market capitalization of a stock. We include all the fund holdings based on the last reporting dates. For each country, we report both the equal-weighted average foreign ownership and the value-weighted foreign ownership weighed by stock market capitalization. We also report the floating adjusted value-weighted foreign ownership, by rescaling market capitalization to adjust for the percentage of not closely held shares, as reported in Table 1 of Dahlquist, Pinkowitz, Stulz and Williamson (2003). There are a few countries where the float-adjustment is not available.

Country	Mean (equal-weighted)	Standard Deviation	N	Value-weighted	Floating adjusted
ARGENTINA	0.013	0.041	40	0.011	0.024
AUSTRALIA	0.048	0.065	798	0.086	0.115
AUSTRIA	0.105	0.112	81	0.151	0.334
BELGIUM	0.073	0.080	126	0.136	0.257
BERMUDA	0.217	0.171	73	0.244	
BRAZIL	0.072	0.086	194	0.058	0.177
CANADA	0.059	0.077	1404	0.124	0.243
CHILE	0.014	0.022	70	0.014	0.040
CHINA	0.067	0.116	605	0.092	0.296
CROATIA	0.022	0.030	61	0.010	
DENMARK	0.053	0.078	138	0.128	0.171
EGYPT	0.030	0.038	47	0.058	0.097
FINLAND	0.108	0.107	128	0.240	0.313
FRANCE	0.069	0.084	522	0.156	0.252
GERMANY	0.085	0.103	568	0.189	0.342
GREECE	0.062	0.097	210	0.147	0.593
HONG KONG	0.050	0.066	804	0.090	0.157
INDIA	0.044	0.053	666	0.070	0.118
INDONESIA	0.048	0.055	149	0.102	0.328
IRELAND	0.139	0.118	83	0.197	0.227
ISRAEL	0.046	0.075	208	0.077	0.184
ITALY	0.062	0.069	291	0.137	0.219
JAPAN	0.039	0.048	2525	0.094	0.153
SOUTH KOREA	0.049	0.068	743	0.126	0.207
LITHUANIA	0.094	0.099	32	0.049	
MALAYSIA	0.035	0.056	424	0.082	0.172
MEXICO	0.062	0.097	89	0.071	0.097
NETHERLANDS	0.144	0.137	163	0.186	0.280
NEW ZEALAND	0.035	0.050	78	0.070	0.309
NIGERIA	0.003	0.008	35	0.005	
NORWAY	0.078	0.088	196	0.149	0.253
PAKISTAN	0.023	0.045	44	0.029	0.129
PERU	0.022	0.039	31	0.055	0.174
PHILIPPINES	0.054	0.062	96	0.102	0.209
POLAND	0.040	0.049	174	0.076	0.212
PORTUGAL	0.054	0.049	40	0.084	0.129
ROMANIA	0.094	0.135	43	0.035	
RUSSIAN FEDERATION	0.036	0.054	225	0.022	
SINGAPORE	0.053	0.075	361	0.116	0.271
SOUTH AFRICA	0.056	0.074	186	0.110	0.234
SPAIN	0.054	0.064	143	0.116	0.200
SWEDEN	0.070	0.078	271	0.126	0.160
SWITZERLAND	0.101	0.109	243	0.190	0.256
TAIWAN	0.042	0.061	653	0.123	0.158
THAILAND	0.040	0.046	199	0.061	0.145
TURKEY	0.067	0.075	178	0.115	0.394
UNITED KINGDOM	0.057	0.070	1198	0.123	0.136
Average	0.056	0.077		0.103	0.214

Table I (Cont'd)**Panel B: Type of Institutional Investors**

In Panel B, we report the number of funds under management and total foreign holdings by the type of institutions at the end of December 2007. Factset/LionShares classify professional money managers into the following investor types: investment advisor, bank management division, mutual fund manager, insurance management division, hedge fund company, private banking portfolio, pension fund, insurance company, venture capital, fund distributor, arbitrage, Foundation/Endowment and Corporate. For each type of institutions, we report the total number of funds under management and the total foreign holdings in billions of US dollars. We also report separately for institutions located in the North-American region (Canada and US) and for institutions outside of the North-American region.

Institutions Type	All Institutions		North-American		Non North-American	
	# of Managed funds	Total foreign holdings (\$ bns)	# of Managed funds	Total foreign holdings (\$ bns)	# of Managed funds	Total foreign holdings (\$ bns)
Investment Adviser	10,657	2111.81	3,441	1188.25	7,216	923.57
Bank Management Division	8,242	851.22	601	61.84	7,641	789.37
Mutual Fund Manager	5,093	1072.15	3,161	776.27	1,932	295.88
Insurance Management Division	1,098	177.62	234	12.96	864	164.66
Broker/Inv Bank Asset Mgmt	622	99.65	254	34.83	368	64.83
Hedge Fund Company	262	36.48	153	8.01	109	28.47
Private Banking Portfolio	126	5.86	0	0	126	5.86
Pension Fund	76	249.38	8	70.81	68	178.57
Insurance Company	67	10.71	3	0	64	10.71
Venture Capital/Pvt Equity	16	0.15	0	0	16	0.15
Fund Distributor	14	0.29	0	0	14	0.29
Arbitrage	5	0.24	5	0.24	0	0
Foundation/Endowment	3	0.39	0	0	3	0.39
Corporate	1	0	0	0	1	0
Total	26,282	4615.94	7,860	2153.21	18,422	2462.73

Table I (Cont'd)

Panel C: Foreign Ownership Composition by Country

In Panel C, we report the composition of foreign ownership at the end of December 2007. Using the Factset classifications of foreign investors as reported in Panel B, we calculate the fraction of foreign holdings managed by the type of managing institutions. For each country, we report the mean and standard deviation of bank-managed fraction, the mean of investment advisor-managed fraction, mutual fund managed-fraction and the fraction managed by other type of investors. Bank managed fraction is defined as the holdings by bank asset management division divided by the total foreign holdings. The other fractions are calculated likewise.

Country	Bank asset management division (mean)	Bank asset management division (sta. dev.)	Investment advisor (mean)	Mutual fund manager (mean)	Others (mean)
ARGENTINA	0.086	0.195	0.685	0.076	0.152
AUSTRALIA	0.125	0.231	0.606	0.142	0.128
AUSTRIA	0.278	0.249	0.530	0.118	0.074
BELGIUM	0.252	0.271	0.426	0.143	0.179
BERMUDA	0.063	0.089	0.555	0.289	0.093
BRAZIL	0.167	0.229	0.399	0.278	0.155
CANADA	0.084	0.207	0.603	0.249	0.064
CHILE	0.080	0.211	0.648	0.206	0.067
CHINA	0.150	0.275	0.546	0.158	0.147
CROATIA	0.144	0.236	0.362	0.265	0.228
DENMARK	0.109	0.170	0.651	0.155	0.085
EGYPT	0.175	0.290	0.629	0.140	0.056
FINLAND	0.117	0.139	0.624	0.164	0.095
FRANCE	0.218	0.281	0.538	0.160	0.084
GERMANY	0.187	0.271	0.562	0.177	0.074
GREECE	0.170	0.262	0.669	0.107	0.053
HONG KONG	0.113	0.218	0.655	0.158	0.074
INDIA	0.135	0.254	0.574	0.233	0.058
INDONESIA	0.123	0.217	0.575	0.232	0.071
IRELAND	0.197	0.235	0.550	0.148	0.105
ISRAEL	0.075	0.202	0.659	0.197	0.069
ITALY	0.232	0.228	0.558	0.123	0.087
JAPAN	0.097	0.169	0.632	0.170	0.101
SOUTH KOREA	0.128	0.268	0.611	0.196	0.065
LITHUANIA	0.245	0.266	0.345	0.056	0.354
MALAYSIA	0.079	0.181	0.756	0.124	0.041
MEXICO	0.130	0.216	0.565	0.197	0.107
NETHERLANDS	0.226	0.229	0.512	0.189	0.073
NEW ZEALAND	0.120	0.223	0.697	0.119	0.064
NIGERIA	0.039	0.171	0.884	0.056	0.021
NORWAY	0.108	0.176	0.504	0.241	0.147
PAKISTAN	0.072	0.151	0.588	0.241	0.100
PERU	0.101	0.162	0.618	0.130	0.150
PHILIPPINES	0.158	0.279	0.548	0.180	0.114
POLAND	0.429	0.370	0.430	0.082	0.059
PORTUGAL	0.254	0.239	0.418	0.224	0.105
ROMANIA	0.249	0.277	0.570	0.125	0.057
RUSSIAN FEDERATION	0.227	0.309	0.414	0.197	0.162
SINGAPORE	0.111	0.212	0.613	0.182	0.094
SOUTH AFRICA	0.119	0.212	0.580	0.185	0.116
SPAIN	0.300	0.248	0.414	0.156	0.129
SWEDEN	0.181	0.242	0.557	0.153	0.109
SWITZERLAND	0.178	0.209	0.524	0.207	0.091
TAIWAN	0.151	0.252	0.627	0.163	0.059
THAILAND	0.063	0.161	0.580	0.214	0.143
TURKEY	0.168	0.227	0.603	0.100	0.129
UNITED KINGDOM	0.204	0.266	0.523	0.174	0.099
Average	0.142	0.238	0.587	0.178	0.092

Table II
Summary Statistics of Main Variables

This table provides summary statistics of firm-level variables used in this study. The sample period is from 2001 to 2009. For each variable we report the data source, mean, median, standard deviation and number of observations. Detailed definitions can be found in the Appendix.

<i>Variable</i>	Data Source	Mean	Median	Std. Dev.	N
Foreign ownership	Factset	3.5%	1.1%	5.6%	58631
Foreign Bank-managed ownership	Factset	0.5%	0.0%	1.3%	58631
Foreign Non-bank-managed ownership	Factset	3.0%	0.9%	4.9%	58631
Domestic ownership	Factset	2.3%	0.0%	5.4%	58631
Missing domestic ownership dummy	Factset	0.43	0	0.49	58631
CDS change - stock return comovement	Markit/Compustat Global	-0.01	-0.01	0.06	1957
Amihud illiquidity	Compustat Global	0.60	0.26	0.97	58631
Likelihood of extremely low returns	Compustat Global	0.13	0	0.33	56789
Negative stock return skewness	Compustat Global	-0.35	-0.32	0.44	52399
Shift in Short-selling demand	Data Explorer	0.32	0	0.46	36806
Log(market value)	Compustat Global	5.63	5.42	1.75	58631
Market-to-book	Datastream	2.00	1.33	2.40	58631
Book leverage	Datastream	0.25	0.20	0.24	58631
Profitability	Datastream	0.05	0.05	0.12	58631
ADR dummy	BNY Mellon	0.07	0	0.26	58631
Return volatility	Compustat Global	0.03	0.03	0.01	57890
Share turnover	Compustat Global	0.23	0.12	0.33	58413
Log(number of analyst)	IBES	1.36	1.09	1.07	58631
Stock return	Compustat Global	0.07	0.01	0.47	58523

Table III
Foreign Ownership Composition Around the Global Financial Crisis

In this table we examine the evolution of foreign ownership and foreign ownership composition around the 2008-2009 global financial crisis. For each year from 2006 to 2009, we report the level of year-end foreign ownership. Foreign ownership is defined as foreign investor holdings divided by the year-end market capitalization of a stock. We also report separately the proportion of foreign ownership managed by bank management division, investment advisor, mutual fund manager and other institution types. Both two tailed T-test and Wilconxon rank-sum test are performed to test the differences in foreign ownership and foreign ownership composition across years. The number of observations is given in the parentheses. ***, ** and * represent significance levels at 1%, 5% and 10% respectively.

In Panel A, when calculating foreign ownership and ownership composition, we include all fund holdings as of the last report date of the institution. We include those institutions which report their holdings at least once in each of the four years. For additional consistency in the comparison across years, in Panel B, we only focus on those institutions with last reporting date on Dec 30 or on Dec 31 of each year.

Panel A: Last-Report Date Holdings

Year	Foreign ownership	Fraction: Bank-managed funds	Fraction: Investment advisor	Fraction: Mutual fund manager	Fraction: Others
2006	0.050	0.130	0.626	0.173	0.071
2007	0.051	0.141	0.612	0.182	0.065
2008	0.047	0.169	0.605	0.170	0.056
2009	0.045	0.205	0.575	0.158	0.062
T-test: (2007=2008)	22.69***	-14.86***	1.05	10.82***	3.52***
Signrank test: (2007=2008)	24.24*** (12964)	-20.94*** (12964)	2.84*** (12964)	12.86*** (12964)	5.31*** (12964)
T-test: (2006=2009)	10.28***	-13.22***	3.84***	4.97***	4.54***
Signrank test: (2006=2009)	9.03*** (9957)	-18.00*** (9957)	5.12*** (9957)	5.11*** (9957)	-0.37 (9957)

Panel B: End-of-December Holdings

Year	Foreign ownership	Fraction: Bank-managed funds	Fraction: Investment advisor	Fraction: Mutual fund manager	Fraction: Others
2006	0.028	0.209	0.524	0.207	0.060
2007	0.028	0.267	0.466	0.211	0.055
2008	0.026	0.329	0.448	0.179	0.044
2009	0.027	0.368	0.413	0.177	0.042
T-test: (2007=2008)	7.75***	-23.55***	8.50***	14.01***	7.82***
Signrank test: (2007=2008)	4.50*** (8986)	-28.52*** (8986)	9.84*** (8986)	13.00*** (8986)	3.90*** (8986)
T-test: (2006=2009)	-1.73*	-30.07***	20.56***	4.41***	8.63***
Signrank test: (2006=2009)	-5.74*** (6447)	-32.10*** (6447)	20.19*** (6447)	2.17** (6447)	1.76* (6447)

Table IV: Identify Information Advantage of Foreign Bank-managed Funds
Panel A: Test I

Panel A provides an indirect test. We use Acharya and Johnson (2007) approach that informed banks with lending relationships use non-public information in the credit default swap (CDS) market. We want to examine the comovement between the CDS changes and the stock returns and link the comovement with foreign bank-managed ownership. We proceed in the following steps. First, we obtain daily CDS spreads for international bond issuers from Markit. We only use 5-year maturity contracts as they are the most liquid. We calculate the daily percentage change in CDS spread for each contract and then calculate the average change for each firm across different currencies and restructuring clauses. Second, we perform name matching to match the names of bond issuers from Markit with the stock names from Factset. We are able to identify 1678 matches out of 5494 bond issuers names from Markit. Next, for each stock-year, we calculate the comovement between CDS changes and stock returns by regressing daily stock returns on CDS changes and local market returns (without constant) and take the coefficient on CDS changes as the dependent variable in Panel A1 and Panel A2. In Panel A1, we link the comovement between CDS changes and stock returns with foreign bank-managed ownership. All variables on the right-hand side are taken at the beginning of the year. Column (1) and (2) are based on the full sample. Column (2) includes both industry-fixed effects and country-year fixed effects. Column (3) is for the non-crisis period from 2002 to 2007. Column (4) is for the crisis period from 2008 to 2009. Detailed definitions of each independent variable is can be found in the Appendix. In Panel A2, we focus on the borrower subsample (the match between Factset and LPC Dealscan), and decompose foreign bank ownership into two parts: high-lending relationship ownership, representing the holdings by foreign investors from countries with high-lending relationship with the stock, and low-lending relationship ownership, representing the holdings by foreign investors from countries with low-lending relationship with the stock. We use the same specifications as in Panel A1. For brevity, we only report the variables of interest. The errors are clustered at the firm level. ***, ** and * represent significance levels at 1%, 5% and 10% using robust standard errors. t-statistics are in parentheses.

Panel A1: Foreign Bank Managed Ownership

	Full Sample		Non-crisis	Crisis
	(1)	(2)	(3)	(4)
Foreign bank-managed ownership	0.682*** (3.33)	0.706*** (3.30)	0.610** (2.47)	1.064*** (3.10)
Other foreign institutional ownership	-0.090** (-2.07)	-0.079* (-1.78)	-0.080 (-1.58)	-0.099 (-1.38)
Domestic ownership	0.045 (0.46)	0.037 (0.40)	0.062 (0.68)	-0.142 (-0.65)
Dummy variable: missing domestic ownership	0.002 (0.22)	-0.002 (-0.19)	-0.012 (-0.80)	0.015 (0.94)
Log(market value)	0.001 (0.44)	0.001 (0.46)	0.001 (0.32)	0.001 (0.23)
Market-to-book	0.002 (1.45)	0.001 (0.91)	0.000 (0.40)	0.002 (0.89)
Book leverage	-0.005 (-0.63)	0.003 (0.30)	0.000 (0.02)	0.007 (0.43)
Profitability	0.031 (0.97)	0.025 (0.67)	0.002 (0.06)	0.076 (0.93)
ADR dummy	0.000 (0.13)	0.002 (0.63)	0.004 (0.89)	0.001 (0.09)
Return volatility	-0.766** (-2.62)	-0.490 (-1.47)	-0.807 (-1.56)	-0.299 (-0.74)
Share turnover	-0.024** (-2.37)	-0.025** (-2.59)	-0.023 (-1.56)	-0.030** (-2.09)
Number of Analyst	-0.004** (-2.41)	-0.004** (-2.19)	-0.004* (-1.72)	-0.005 (-1.10)
Stock return	0.025*** (4.01)	0.022*** (3.47)	0.019*** (2.66)	0.026* (1.95)
Const	-0.003 (-0.08)	-0.028 (-0.56)	-0.001 (-0.02)	-0.054 (-0.68)
Industry fixed effects	-	Y	Y	Y
Country-year fixed effects	Y	Y	Y	Y
Clustering	Firm	Firm	Firm	Firm
R-squared	0.1437	0.1878	0.2006	0.2492
Number of Obs	1955	1955	1325	630

Panel A2: Decomposition into High lending ownership & Low lending ownership

	Full Sample		Non-crisis	Crisis
	(1)	(2)	(3)	(4)
Foreign bank-managed ownership: high lending	1.122*** (3.47)	0.942*** (2.70)	0.359 (1.02)	2.300*** (2.86)
Foreign bank-managed ownership: low lending	0.476 (1.47)	0.486 (1.34)	0.518 (1.31)	0.532 (0.72)
Other controls	Y	Y	Y	Y
Industry fixed effects	-	Y	Y	Y
Country-year fixed effects	Y	Y	Y	Y
Clustering	Firm	Firm	Firm	Firm
R-squared	0.2400	0.2945	0.3430	0.3497
Number of Obs	1002	1002	703	299

Table IV: Identify Information Advantage of Foreign Bank-managed Funds**Panel B: Test II**

In this table we identify information advantage of foreign bank managed funds. Panel A provides a direct test. First, we perform name matching to match the stock names from Factset with the borrower names from LPC Dealscan. We are able to identify 6580 confident matches out of 48865 stock names from Factset. This is our “borrower” subsample. For each stock i in the borrower subsample, we define a country j as a high-lending relationship country, if the bank loans lent by country j 's lenders are above the median lending amount among stock i 's current borrowing countries. The rest of countries are defined as low-lending relationship country.

Second, for each bank-managed fund located in country j , we examine its quarter-end portfolio holdings. We create two value-weighted portfolios: high-lending relationship portfolio and low-lending relationship portfolio. High-lending portfolio consists of stocks with high-lending relationship with country j , while low-lending portfolio is formed out of stocks with low-lending relationship with country j . Next, we construct the portfolio buy-and-hold returns over the next quarter and calculate the difference in returns between the high-lending relationship portfolio and the low-lending relationship portfolio. The portfolios are rebalanced at the beginning of every quarter. Then, we run a pooled regression of regressing difference in returns (high lending portfolio minus low lending portfolio) on risk factors. We employ both a 4-factor model and an 8-factor model. The data on domestic and international risk factors from 2002 to 2009 are obtained from Sandy and Hau (2010), Sandy et. al. (2010).

The results are reported in Panel A1 and A2. In Panel A1, the sample period is the non-crisis period from 2002 to 2007. In Column (1) we include 4 international risk factors, and we add 4 domestic risk factors in column (2). In column (3) and (4) we require that the number of quarterly difference in portfolio returns must be above 20 to be included in the regression. Panel A2 follows the sample specifications as in Panel A1 but it is for the crisis period from 2008 to 2009. ***, ** and * represent significance levels at 1%, 5% and 10% respectively with t-statistics given in parentheses.

Panel B1: Non-crisis period

<i>Dif: High lending portfolio-Low lending portfolio</i>	Full sample		Sub-sample (#quarter \geq 20)	
	(1)	(2)	(3)	(4)
International market factor	0.096*** (4.10)	0.074** (1.98)	0.089*** (3.51)	0.061 (1.47)
International smb factor	-0.190*** (-4.08)	-0.213*** (-4.10)	-0.221*** (-4.20)	-0.260*** (-4.41)
International hml factor	-0.481*** (-8.21)	-0.497*** (-8.33)	-0.518*** (-8.02)	-0.526*** (-7.96)
International momentum factor	0.004 (0.13)	0.089** (2.37)	-0.009 (-0.27)	0.088** (2.12)
Domestic market factor		0.019 (0.76)		0.037 (1.38)
Domestic smb factor		0.030 (1.13)		0.086*** (2.85)
Domestic hml factor		0.038 (1.32)		-0.001 (-0.04)
Domestic momentum factor		-0.084*** (-3.86)		-0.098*** (-3.94)
Alpha	0.005** (2.42)	0.006*** (2.67)	0.005** (2.26)	0.006*** (2.76)
R-squared	0.0361	0.0420	0.0452	0.0547
Number of Obs.	3307	3307	2461	2461

Panel B2: Crisis Period

<i>Dif: High lending portfolio-Low lending portfolio</i>	Full sample		Sub-sample (#quarter \geq 20)	
	(1)	(2)	(3)	(4)
International market factor	-0.112*** (-3.75)	-0.240*** (-5.19)	-0.155*** (-5.36)	-0.316*** (-7.05)
International smb factor	-1.906*** (-5.39)	-1.868*** (-4.99)	-1.947*** (-5.57)	-1.900*** (-4.94)
International hml factor	-0.269*** (-4.35)	-0.318*** (-3.98)	-0.166*** (-2.72)	-0.287*** (-3.49)
International momentum factor	-0.089** (-2.19)	-0.103** (-2.18)	-0.095** (-2.47)	-0.111** (-2.40)
Domestic market factor		0.149*** (3.58)		0.191*** (4.09)
Domestic smb factor		0.072 (1.46)		0.080 (1.55)
Domestic hml factor		0.040 (0.93)		0.098** (2.16)
Domestic momentum factor		0.042 (1.09)		0.051 (1.25)
Alpha	0.016*** (3.39)	0.016*** (3.37)	0.013*** (2.96)	0.013*** (2.87)
R-squared	0.0448	0.0555	0.0905	0.1141
Number of Obs.	1257	1257	860	860

Table V
Drop in Foreign Ownership and Abnormal Stock Returns

This table examines the relationship between changes in foreign ownership and abnormal stock returns. Given that most of institutions report their holdings semi-annually, we use semi-annual frequency. For each stock-half year, we calculate the drop in bank-managed (non bank managed) foreign ownership from the beginning of the half year to the end of half year. To calculate abnormal stock returns, we use an 8-factor model with 4 domestic factors (market factor, hml, smb and momentum factor) and 4 international factors (international market factor, hml smb and momentum factor), as used in Sandy et. al. (2010). We use the monly stock returns from 2002 to 2005 (the training period) to estimate the factor loadings. The detailed procedure is described in the appendix.

Panel A: Contemporaneous Returns

In Panel A, we link the drop in foreign ownership with the contemporaneous abnormal returns over the half year. All firm-level accounting variables on the right-hand side are taken at the beginning of the year. Column (1) and (2) are based on the full sample. Column (2) includes both industry-fixed effects and country-year fixed effects. Column (3) is for the non-crisis period from 2006 to 2007. Column (4) is for the crisis period from 2008 to 2009. Detailed definitions of each independent variable can be found in the appendix.

	Full Sample		Non-crisis	Crisis
	(1)	(2)	(3)	(4)
Drop in foreign bank-managed ownership	-1.205*** (-6.36)	-1.202*** (-6.36)	-1.527*** (-6.41)	-0.705** (-2.05)
Drop in foreign non bank-managed ownership	-0.478*** (-8.07)	-0.468*** (-7.94)	-0.435*** (-6.17)	-0.510*** (-5.17)
Drop in domestic ownership	-0.218*** (-3.98)	-0.224*** (-4.08)	-0.218*** (-3.00)	-0.222*** (-2.68)
Dummy variable: missing domestic ownership	-0.015*** (-4.04)	-0.015*** (-4.03)	-0.009* (-1.78)	-0.019*** (-3.24)
Log(market value)	-0.003** (-2.51)	-0.001 (-1.17)	0.000 (-0.27)	-0.002 (-1.21)
Market-to-book	-0.001 (-1.44)	-0.002*** (-2.69)	-0.003*** (-3.64)	0.000 (-0.05)
Book leverage	-0.028*** (-5.36)	-0.023*** (-4.19)	0.001 (0.18)	-0.053*** (-6.08)
Profitability	0.042*** (2.80)	0.037** (2.44)	0.020 (1.03)	0.049** (2.10)
ADR dummy	0.009** (2.25)	0.008** (2.01)	0.008 (1.26)	0.004 (0.66)
Return volatility	-0.418*** (-2.67)	-0.440*** (-2.72)	-0.822*** (-3.23)	-0.247 (-1.16)
Share turnover	-0.021*** (-3.99)	-0.023*** (-4.54)	-0.039*** (-5.80)	-0.005 (-0.60)
Number of Analyst	0.004** (2.41)	0.003* (1.73)	-0.001 (-0.38)	0.006** (2.55)
Stock return	-0.014*** (-3.79)	-0.017*** (-4.76)	-0.003 (-0.59)	-0.043*** (-6.49)
Const	0.016** (2.10)	-0.092 (-1.29)	-0.099 (-1.31)	0.196*** (14.48)
Industry fixed effects	-	Y	Y	Y
Country-year fixed effects	Y	Y	Y	Y
Clustering	Firm	Firm	Firm	Firm
R-squared	0.0952	0.0993	0.0907	0.1117
Number of Obs	57512	57512	29992	27520

Table V (Cont'd)**Panel B: Decomposition into High lending ownership & Low lending ownership**

In Panel B, we focus on the borrower subsample (the match between Factset and LPC Dealscan), and decompose the drop in foreign bank ownership into two parts: drop in high-lending relationship ownership, representing the drop in holdings by foreign investors from countries with high-lending relationship with the stock, and drop in low-lending relationship ownership, representing the drop in holdings by foreign investors from countries with low-lending relationship with the stock. We use the same specifications as in Panel A.

	Full Sample		Non-crisis	Crisis
	(1)	(2)	(3)	(4)
Drop in foreign bank-managed ownership: high lending	-1.905***	-1.896***	-2.405***	-1.205
	(-3.44)	(-3.41)	(-3.38)	(-1.25)
Drop in foreign bank-managed ownership: low lending	-0.828	-0.774	-0.730	-0.808
	(-1.45)	(-1.36)	(-0.96)	(-1.01)
Drop in foreign non bank-managed ownership	-0.662***	-0.638***	-0.429***	-0.828***
	(-5.16)	(-5.02)	(-3.05)	(-3.98)
Drop in domestic ownership	-0.046	-0.055	-0.088	-0.056
	(-0.34)	(-0.41)	(-0.50)	(-0.23)
Dummy variable: missing domestic ownership	-0.024**	-0.024*	-0.018	-0.029
	(-2.02)	(-1.92)	(-1.07)	(-1.49)
Log(market value)	-0.001	-0.003	-0.003	0.000
	(-0.36)	(-1.05)	(-0.78)	(-0.05)
Market-to-book	0.005***	0.003**	0.001	0.006**
	(3.18)	(2.11)	(0.45)	(2.35)
Book leverage	-0.052***	-0.039***	-0.021	-0.056**
	(-4.13)	(-2.91)	(-1.14)	(-2.55)
Profitability	-0.030	-0.072	-0.087	-0.077
	(-0.61)	(-1.32)	(-1.27)	(-0.93)
ADR dummy	0.011	0.012	0.007	0.007
	(1.43)	(1.57)	(0.66)	(0.60)
Return volatility	0.243	0.228	1.375*	-0.468
	(0.47)	(0.43)	(1.85)	(-0.71)
Share turnover	-0.007	-0.007	-0.056***	0.040
	(-0.41)	(-0.42)	(-2.87)	(1.61)
Number of Analyst	-0.001	-0.001	-0.002	0.002
	(-0.34)	(-0.17)	(-0.37)	(0.28)
Stock return	0.003	-0.011	0.003	-0.037**
	(0.31)	(-1.07)	(0.23)	(-2.16)
Const	0.002	-0.186***	-0.200***	-0.207***
	(0.09)	(-5.11)	(-4.56)	(-4.55)
Industry fixed effects	-	Y	Y	Y
Country-quarter fixed effects	Y	Y	Y	Y
Clustering	Firm	Firm	Firm	Firm
R-squared	0.1078	0.1214	0.1286	0.1372
Number of Obs	7939	7939	4032	3907

Table V (Cont'd)**Panel C: Future Returns**

In Panel C, instead of looking at contemporaneous returns, we use the abnormal return in the next half year as the dependent variable. We use the same specifications as in Panel A. The standard errors are always clustered at the firm level. ***, ** and * represent significance levels at 1%, 5% and 10% respectively using robust standard errors with t-statistics given in parentheses.

	Full Sample		Non-crisis	Crisis
	(1)	(2)	(3)	(4)
Drop in foreign bank-managed ownership	-0.058 (-0.33)	-0.050 (-0.28)	-0.240 (-1.07)	0.264 (0.83)
Drop in foreign non-bank-managed ownership	0.121** (2.20)	0.128** (2.32)	0.050 (0.75)	0.231** (2.59)
Drop in domestic ownership	-0.015 (-0.27)	-0.019 (-0.34)	-0.117 (-1.65)	0.090 (1.03)
Dummy variable: missing domestic ownership	-0.001 (-0.25)	-0.001 (-0.21)	0.001 (0.12)	0.000 (-0.05)
Log(market value)	-0.001 (-0.82)	0.001 (0.46)	0.001 (0.85)	0.000 (-0.12)
Market-to-book	-0.001* (-1.69)	-0.002*** (-2.94)	-0.004*** (-3.91)	0.000 (-0.06)
Book leverage	-0.028*** (-5.32)	-0.023*** (-4.03)	0.002 (0.33)	-0.053*** (-6.09)
Profitability	0.047*** (3.17)	0.042*** (2.82)	0.027 (1.44)	0.053** (2.32)
ADR dummy	0.008* (1.92)	0.007 (1.65)	0.007 (1.08)	0.003 (0.47)
Return volatility	-0.473*** (-3.03)	-0.496*** (-3.08)	-0.845*** (-3.31)	-0.323 (-1.53)
Share turnover	-0.020*** (-3.87)	-0.023*** (-4.45)	-0.039*** (-5.70)	-0.004 (-0.50)
Number of Analyst	0.004*** (2.73)	0.003** (2.01)	0.000 (-0.11)	0.006*** (2.72)
Stock return	-0.013*** (-3.67)	-0.017*** (-4.67)	-0.003 (-0.79)	-0.041*** (-6.22)
Const	0.001 (0.12)	-0.118* (-1.69)	-0.122 (-1.64)	-0.006 (-0.42)
Industry fixed effects	-	Y	Y	Y
Country-quarter fixed effects	Y	Y	Y	Y
Clustering	Firm	Firm	Firm	Firm
R-squared	0.0922	0.0963	0.0865	0.1093
Number of Obs	57485	57485	29868	27617

Table VI
Foreign Bank-managed Ownership and Stock Illiquidity

This table presents the regression results of stock illiquidity on foreign bank-managed ownership. In Panel A, we report the panel regression results. The dependent variable is the Amihud illiquidity measure estimated using daily stock returns and trading volumes over the year. All firm-level accounting variables on the right-hand side are taken at the beginning of the year. Column (1) and (2) are based on the full sample. Column (2) includes both industry-fixed effects and country-year fixed effects. Column (3) is for the non-crisis period from 2001 to 2007. Column (4) is for the crisis period from 2008 to 2009. Detailed definitions of each independent variable can be found in the appendix. The standard errors are always clustered at the firm level.

Panel A: Panel Regression

	Full Sample		Non-crisis	Crisis
	(1)	(2)	(3)	(4)
Foreign bank-managed ownership	-0.359 (-1.33)	-0.166 (-0.62)	1.435*** (2.78)	-3.473*** (-7.22)
Other foreign institutional ownership	0.233** (2.55)	0.290*** (3.18)	0.820*** (7.22)	0.229* (1.69)
Domestic ownership	-0.519*** (-6.19)	-0.474*** (-5.69)	-0.681*** (-7.44)	-0.098 (-0.76)
Dummy variable: missing domestic ownership	0.206*** (19.14)	0.197*** (18.43)	0.145*** (13.77)	0.337*** (14.35)
Log(market value)	-0.171*** (-36.79)	-0.179*** (-36.17)	-0.160*** (-31.63)	-0.235*** (-27.40)
Market-to-book	-0.011*** (-5.26)	-0.010*** (-4.62)	-0.013*** (-6.52)	-0.001 (-0.12)
Book leverage	-0.084*** (-5.08)	-0.101*** (-5.70)	-0.075*** (-4.09)	-0.148*** (-4.55)
Profitability	0.075* (1.68)	0.076* (1.71)	0.104** (2.47)	0.031 (0.29)
ADR dummy	0.179*** (9.78)	0.190*** (10.27)	0.200*** (10.11)	0.251*** (9.75)
Return volatility	17.280*** (19.86)	18.086*** (20.07)	15.774*** (16.99)	25.531*** (14.87)
Share turnover	-0.615*** (-32.85)	-0.600*** (-32.55)	-0.508*** (-27.99)	-0.796*** (-22.61)
Number of Analyst	-0.087*** (-15.27)	-0.084*** (-14.40)	-0.101*** (-15.90)	-0.067*** (-7.28)
Stock return	-0.114*** (-14.21)	-0.105*** (-13.05)	-0.134*** (-16.13)	0.014 (0.69)
Const	1.282*** (35.90)	1.290*** (16.01)	1.205*** (14.62)	1.382*** (11.24)
Industry fixed effects	-	Y	Y	Y
Country-year fixed effects	Y	Y	Y	Y
Clustering	Firm	Firm	Firm	Firm
R-squared	0.5016	0.5082	0.5124	0.5318
Number of Obs	57787	57787	42569	15218

Table VI (Cont'd)

Panel B: Change in Illiquidity around the Crisis

In Panel B, we regress the change in Amihud illiquidity around the crisis period on the pre-crisis foreign bank-managed ownership. In column (1) and (2), the dependent variable is the change in Amihud illiquidity from 2008 to 2007. In column (3) and (4), we first calculate the average illiquidity in 2008 and in 2009, then calculate the difference with respect to the illiquidity in 2007. All independent variables are taken at the end of year 2007. ***, ** and * represent significance levels at 1%, 5% and 10% respectively using robust standard errors with t-statistics given in parentheses.

	Change: 2008 minus 2007		Change: average (2008 & 2009) - 2007	
	(1)	(2)	(3)	(4)
Foreign bank-managed ownership	-1.203*** (-3.63)	-1.090*** (-3.25)	-1.840*** (-5.08)	-1.694*** (-4.60)
Other foreign institutional ownership	-0.016 (-0.17)	0.001 (0.01)	-0.096 (-0.99)	-0.066 (-0.67)
Domestic ownership	-0.432*** (-3.77)	-0.490*** (-4.26)	-0.399*** (-2.86)	-0.478*** (-3.41)
Dummy variable: missing domestic ownership	0.175*** (11.06)	0.174*** (11.00)	0.162*** (9.12)	0.163*** (9.22)
Log(market value)	-0.115*** (-23.71)	-0.115*** (-22.12)	-0.130*** (-25.25)	-0.130*** (-23.51)
Market-to-book	-0.005** (-2.13)	-0.005* (-1.92)	-0.006** (-2.32)	-0.005* (-1.82)
Book leverage	-0.046** (-2.40)	-0.040* (-1.93)	-0.043* (-1.88)	-0.039 (-1.61)
Profitability	0.086 (1.50)	0.061 (1.05)	0.117* (1.83)	0.073 (1.13)
ADR dummy	0.128*** (7.30)	0.131*** (7.39)	0.159*** (7.91)	0.162*** (8.02)
Return volatility	8.912*** (7.80)	9.331*** (7.66)	9.223*** (8.18)	9.505*** (8.03)
Share turnover	-0.290*** (-15.46)	-0.292*** (-15.35)	-0.287*** (-14.75)	-0.292*** (-14.76)
Number of Analyst	-0.029*** (-5.05)	-0.029*** (-4.96)	-0.032*** (-5.09)	-0.033*** (-4.98)
Stock return	-0.177*** (-14.18)	-0.165*** (-12.93)	-0.186*** (-13.15)	-0.172*** (-11.97)
Const	0.909*** (20.86)	0.590*** (3.50)	1.041*** (22.93)	0.767*** (6.49)
Clustering	Firm	Firm	Firm	Firm
Industry fixed effects	-	Y	-	Y
Country-year fixed effects	Y	Y	Y	Y
R-squared	0.4577	0.4708	0.4452	0.4605
Number of Obs	7653	7653	7653	7653

Table VII
Trading by Foreign Bank-managed Funds and Stock Price Informativeness

This table analyzes the impact of the trading by foreign bank-managed funds on the stock price informativeness. In particular, we link the absolute change in foreign bank-managed ownership and the R-squared of stock returns estimated from a market model. For a given stock-year, we regress the daily returns of the stock on the contemporaneous local market returns and calculate the R-squared of the regression. The R-squared is taken as the dependent variable. We use the absolute change in foreign (bank-managed) ownership from year t to year t-1 to proxy for the trading of foreign (bank-managed) institutions. We put the level of institutional ownership at year t-1 as additional control. We include industry-fixed effects and country-year fixed effects in all specifications. Column (1) is based on the full sample. Column (2) is for the crisis period from 2008 to 2009. Column (3) is for the non-crisis period from 2001 to 2007. Column (4) is for the non-crisis period from 2005 to 2007. The standard errors are always clustered at the firm level. ***, ** and * represent significance levels at 1%, 5% and 10% respectively using robust standard errors with t-statistics given in parentheses.

	Full Sample	Crisis Period (2008-2009)	Non-crisis Period (2001-2007)	Non-crisis Period: (2005-2007)
	(1)	(2)	(3)	(4)
Abs(Δ Foreign bank-managed ownership)	-2.484*** (-3.46)	-4.264*** (-3.25)	-2.210*** (-2.69)	-1.688* (-1.90)
Abs(Δ Other foreign institutional ownership)	-1.252*** (-4.90)	-1.044** (-2.16)	-1.409*** (-4.71)	-0.767** (-2.18)
Abs(Δ Domestic ownership)	-0.577*** (-2.92)	-0.409* (-1.76)	-0.677** (-2.24)	-1.600*** (-4.16)
Foreign bank-managed ownership	5.589*** (9.07)	4.283*** (4.67)	6.344*** (8.79)	5.052*** (7.24)
Other foreign institutional ownership	-0.717*** (-4.45)	-0.565** (-2.21)	-0.733*** (-3.92)	-0.534*** (-2.67)
Domestic ownership	0.342** (2.29)	0.222 (1.14)	0.475** (2.47)	0.219 (0.97)
Dummy variable: missing domestic ownership	-0.036** (-1.99)	-0.119*** (-3.43)	-0.006 (-0.31)	-0.167*** (-5.54)
Log(market value)	0.269*** (34.56)	0.224*** (20.49)	0.283*** (32.36)	0.272*** (27.65)
Market-to-book	-0.021*** (-7.24)	-0.037*** (-7.03)	-0.016*** (-4.82)	-0.038*** (-8.09)
Book leverage	0.093*** (3.22)	0.106** (2.54)	0.088** (2.62)	0.002 (0.05)
Profitability	-0.218*** (-3.58)	0.342*** (2.76)	-0.369*** (-5.50)	-0.419*** (-5.01)
ADR dummy	0.015 (0.58)	0.044 (1.31)	0.031 (0.94)	0.013 (0.38)
Return volatility	1.857** (2.60)	2.165 (1.62)	1.454* (1.81)	-9.517*** (-7.60)
Share turnover	0.382*** (17.05)	0.416*** (11.42)	0.374*** (14.69)	0.475*** (16.05)
Number of Analyst	-0.006 (-0.59)	0.003 (0.21)	-0.012 (-1.06)	-0.041*** (-3.17)
Stock return	-0.118*** (-8.68)	-0.135*** (-4.97)	-0.107*** (-6.95)	0.023 (1.14)
Const	-2.838*** (-20.45)	-2.072*** (-6.83)	-3.093*** (-21.72)	-2.452*** (-12.01)
Industry fixed effects	Y	Y	Y	Y
Country-year fixed effects	Y	Y	Y	Y
Clustering	Firm	Firm	Firm	Firm
R-squared	0.3555	0.3452	0.3351	0.3604
Number of Obs	46713	12157	34556	18433

Table VIII
Foreign Bank-managed Ownership and Stock Price Crash Risk

This table links foreign bank-managed ownership with the risk of stock price crash. We employ two measures to proxy for the stock price crash risk. The first measure is the negative stock return skewness measure (NCSKEW) of Chen et al. (2001). For any stock-year, it is calculated by taking the negative of the third moment of daily returns and dividing it by the standard deviation of daily returns raised to the third power. The detailed definitions can be found in the appendix.

In Panel A, we regress NCSKEW on foreign bank-managed ownership. We include industry-fixed effects and country-year fixed effects in all specifications. Column (1) is based on the full sample. Column (2) is for the crisis period from 2008 to 2009. Column (3) is for the non-crisis period from 2001 to 2007. Column (4) is for the non-crisis period from 2005 to 2007. The standard errors are always clustered at the firm level. ***, ** and * represent significance levels at 1%, 5% and 10% respectively using robust standard errors with t-statistics given in parentheses.

Panel A: Negative Stock Return Skewness

	Full Sample	Crisis Period 2008-2009	Non-crisis Period	Non-crisis Period: (2005-2007)
	(1)	(2)	(3)	(4)
Foreign bank-managed ownership	0.546*** (4.21)	-0.431** (-2.01)	0.964*** (4.67)	1.115*** (3.91)
Other foreign institutional ownership	-0.098** (-2.11)	0.027 (0.50)	-0.069 (-1.01)	-0.171** (-2.13)
Domestic ownership	0.109** (2.03)	0.223*** (3.29)	0.045 (0.54)	0.173* (1.71)
Dummy variable: missing domestic ownership	0.014** (2.31)	-0.004 (-0.46)	0.020*** (2.74)	0.027** (2.62)
Log(market value)	0.036*** (17.75)	0.022*** (7.77)	0.040*** (15.76)	0.036*** (9.92)
Market-to-book	-0.006*** (-6.87)	-0.003** (-2.21)	-0.007*** (-6.52)	-0.011*** (-5.84)
Book leverage	-0.020** (-2.33)	0.007 (0.64)	-0.031*** (-2.86)	-0.035** (-2.47)
Profitability	0.035** (2.04)	0.040 (1.53)	0.035 (1.66)	0.058** (2.03)
ADR dummy	-0.002 (-0.28)	0.016* (1.74)	-0.001 (-0.10)	0.001 (0.10)
Return volatility	-1.308*** (-6.45)	-0.081 (-0.24)	-1.588*** (-6.37)	-2.545*** (-6.44)
Share turnover	0.031*** (5.15)	0.019** (2.28)	0.035*** (4.69)	0.047*** (4.76)
Number of analyst	0.010*** (3.68)	-0.002 (-0.56)	0.014*** (3.76)	0.016*** (3.13)
Stock return	0.012*** (2.73)	0.017** (2.20)	0.013** (2.41)	0.024*** (3.21)
Const	-0.535*** (-29.23)	-0.409*** (-15.08)	-0.585*** (-25.83)	-0.568*** (-18.67)
Industry fixed effects	Y	Y	Y	Y
Country-year fixed effects	Y	Y	Y	Y
Clustering	Firm	Firm	Firm	Firm
R-squared	0.1195	0.1144	0.1177	0.1370
Number of Obs	52123	13967	38156	20201

Table VIII (Cont'd)

In Panel B, we employ the second measure on stock price crash risk. It represents the likelihood of having extremely low returns. Following Hutton et al. (2009), for a given stock-year, we first calculate the log-transformed weekly returns by taking the natural log of one plus the actual weekly stock returns. Then, we define crash weeks as those weeks during which the log-transformed weekly return falls more than 3.29 standard deviations below the mean over the entire year. The measure on the likelihood of extremely low returns is a dummy variable that equals one if for a stock-year, the firm experiences one or more crash weeks, and zero otherwise.

Next, we run a probit regression of this measure on foreign bank-managed ownership. We include industry-fixed effects and country-year fixed effects in all specifications. Column (1) is based on the full sample. Column (2) is for the crisis period from 2008 to 2009. Column (3) is for the non-crisis period from 2001 to 2007. Column (4) is for the non-crisis period from 2005 to 2007. The standard errors are always clustered at the firm level. ***, ** and * represent significance levels at 1%, 5% and 10% respectively using robust standard errors with t-statistics given in parentheses.

Panel B: Likelihood of Extremely Low Returns

	Full Sample	Crisis Period 2008-2009	Non-crisis Period	Non-crisis Period: (2005-2007)
	(1)	(2)	(3)	(4)
Foreign bank-managed ownership	-0.418 (-0.51)	-2.840** (-2.06)	1.116 (1.34)	2.295** (1.99)
Other foreign institutional ownership	-0.065 (-0.33)	0.069 (0.22)	-0.276 (-1.07)	-0.270 (-0.86)
Domestic ownership	0.195 (1.02)	-0.123 (-0.41)	0.369 (1.51)	0.074 (0.25)
Dummy variable: missing domestic ownership	0.056*** (2.70)	0.032 (0.76)	0.062** (2.52)	0.023 (0.66)
Log(market value)	0.011 (1.55)	0.050*** (3.66)	-0.008 (-0.85)	-0.030** (-2.47)
Market-to-book	-0.015*** (-3.81)	-0.015** (-2.00)	-0.016*** (-3.24)	-0.019** (-2.45)
Book leverage	-0.128*** (-3.73)	-0.106* (-1.76)	-0.135*** (-3.21)	-0.230*** (-3.95)
Profitability	0.369** (4.36)	0.150 (1.00)	0.457*** (4.43)	0.554*** (3.94)
ADR dummy	0.013 (0.41)	0.161*** (3.04)	-0.080** (-1.96)	-0.047 (-0.86)
Return volatility	-26.137*** (-22.68)	-29.267*** (-13.86)	-25.051*** (-18.23)	-25.378*** (-12.22)
Share turnover	-0.112*** (-3.07)	-0.132** (-2.15)	-0.098** (-2.17)	-0.077 (-1.39)
Number of analyst	-0.019* (-1.83)	-0.070*** (-3.64)	0.005 (0.37)	0.011 (0.62)
Stock return	0.086*** (4.48)	0.176*** (4.24)	0.051** (2.32)	0.034 (1.04)
Const	-3.647*** (-11.75)	-0.003 (-0.01)	-4.212*** (-16.05)	-0.842 (-1.57)
Industry fixed effects	Y	Y	Y	Y
Country-year fixed effects	Y	Y	Y	Y
Clustering	Firm	Firm	Firm	Firm
Pseudo R-squared	0.0971	0.1608	0.0633	0.0635
Number of Obs	56038	14354	41647	21032

Table IX
Foreign Bank-managed Ownership and Downward Shift in Short-selling Demand

This table links foreign bank-managed ownership with the downward shift in short-selling demand. The data on short-selling quantity and short-selling fee for international stocks are obtained from Data Explorer. We follow the same methodology as in Cohen et al. (2009) to estimate the upward and downward shifts in short-selling demand. For a given stock-month, we say that there is an upward shift in the short-selling demand, if we see both the short-selling fee and short-sold quantity rise at the same time. The month is denoted as an upward-shift month. On the other hand, if we see both the short-selling fee and short-sold quantity fall at the same time, we say that there is a downward shift in the short-selling demand in the month, and the month is denoted as a downward-shift month.

Next, for each stock-year, we define a dummy variable that equals one if the number of upward-shift months is above the number of downward-shift months, and zero otherwise. We then run a probit regression of this measure on foreign bank-managed ownership. We include industry-fixed effects and country-year fixed effects in all specifications. Column (1) is based on the full sample. Column (2) is for the crisis period from 2008 to 2009. Column (3) is for the non-crisis period from 2001 to 2007. Column (4) is for the non-crisis period from 2005 to 2007. The standard errors are always clustered at the firm level. ***, ** and * represent significance levels at 1%, 5% and 10% respectively using robust standard errors with t-statistics given in parentheses.

	Full Sample	Crisis Period 2008-2009	Non-crisis Period	Non-crisis Period: (2005-2007)
	(1)	(2)	(3)	(4)
Foreign bank-managed ownership	-0.162 (-0.26)	-3.086*** (-3.10)	2.232** (2.47)	2.462** (2.53)
Other foreign institutional ownership	-0.047 (-0.28)	-0.300 (-1.15)	-0.015 (-0.07)	-0.227 (-0.92)
Domestic ownership	-0.455*** (-3.01)	-0.267 (-1.00)	-0.596*** (-3.18)	-0.528** (-2.46)
Dummy variable: missing domestic ownership	0.300*** (9.66)	0.326*** (6.04)	0.285*** (7.46)	0.283*** (5.71)
Log(market value)	-0.072*** (-8.88)	-0.020 (-1.57)	-0.103*** (-10.14)	-0.057*** (-4.75)
Market-to-book	0.056*** (2.70)	0.036 (0.86)	0.055** (2.21)	0.024 (0.81)
Book leverage	0.006 (1.43)	0.011* (1.72)	0.003 (0.58)	0.003 (0.46)
Profitability	0.011 (0.31)	0.111* (1.93)	-0.047 (-1.05)	-0.046 (-0.90)
ADR dummy	0.159** (2.22)	0.230* (1.72)	0.123 (1.44)	0.119 (1.22)
Return volatility	0.135*** (4.25)	0.096** (2.07)	0.130*** (3.22)	0.087* (1.85)
Share turnover	-0.709 (-0.72)	-1.452 (-0.91)	-0.679 (-0.53)	-2.810* (-1.70)
Number of analyst	-0.105*** (-3.02)	-0.062 (-1.18)	-0.146*** (-3.16)	-0.104** (-2.09)
Stock return	-0.082*** (-6.72)	-0.067*** (-3.64)	-0.089*** (-5.70)	-0.081*** (-4.53)
Const	1.192*** (7.01)	0.812*** (4.15)	1.721*** (9.65)	1.451*** (7.82)
Industry fixed effects	Y	Y	Y	Y
Country-year fixed effects	Y	Y	Y	Y
Clustering	Firm	Firm	Firm	Firm
PseudoR-squared	0.0755	0.0507	0.0534	0.0311
Number of Obs	29267	9454	19813	13708