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THE VALUE OF EXCESS CASH AND CORPORATE GOVERNANCE:

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ABSTRACT

We examine whether and, if so, how a U.S. cross-listing mitigates the risk that managers will squander corporate cash holdings. We find strong evidence that the value investors attach to excess cash reserves is substantially larger for foreign firms listed on U.S. exchanges and over the counter than for their domestic peers. Further, we show that this excess-cash premium stems not only from the strength of U.S. legal rules and disclosure requirements designed to safeguard investors' money, but also from increased monitoring by financial analysts and large investors. Overall, since investors' valuation of excess cash mirrors how they expect the cash to be used, our analysis shows that a U.S. listing constrains managers' inefficient allocation of corporate cash reserves significantly.

JEL Classification: G15, G34, G31

Keywords: International cross-listing, corporate governance, cash holdings, liquidity

1. INTRODUCTION

When shareholders anticipate that management will squander some of their money, they discount firm value. That is the main conclusion of the literature examining the interplay between firm value and corporate governance; see La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2002) or Durnev and Kim (2005). Agency theories predict that the magnitude of the value shortfall depends not only on the existence and efficiency of mechanisms preventing managers from wasting corporate wealth, but also to a large extent on the availability of resources that can be easily diverted. Although many kinds of assets can be used in value-destroying ventures, Jensen (1986) and Myers and Rajan (1998) argue that cash reserves are especially at risk. Indeed, since the cash not committed to operations and investment—the *excess* cash—can be used as management chooses, it is a strong candidate for inefficient allocation, waste, and misuse.

In this spirit, recent research investigates the relationship between governance mechanisms, cash holdings, and firm value; see Pinkowitz, Stulz, and Williamson (2006), Dittmar and Mahrt-Smith (2006) and Kalcheva and Lins (2007). Consistent with the idea that cash reserves are particularly vulnerable in the hands of unconstrained managers, these cross-sectional studies reveal that when country-level shareholders' protection is weak or when managers are left widely unchecked, investors value cash holdings at a sizable discount. Consequently, a substantial source of value loss associated with weak governance materializes through investors' markdown of liquid assets. In this context, a fundamental question arises: what mechanisms can effectively restrain managers' misallocation of cash reserves and, in turn, help preserve firm value?

To shed some light on that question, this paper explores empirically whether investors perceive any change in the potential for value destruction embodied in large cash reserves when firms take actions that limit the risk of inefficiency. To do so, we focus on the consequences of firms' decision to cross-list in the United States. By listing shares in U.S. markets, foreign firms become subject to various additional governance layers that can restrain managers' misallocation of cash; see Coffee (1999) or Stulz (1999). Firms cross-listing on a U.S. exchange are exposed to enforcement procedures initiated by the SEC or to class actions lawsuits filed in U.S. courts, and are required to comply with demanding U.S. disclosure requirements. Foreign firms accessing U.S. capital markets through over-the-counter (OTC) listings or via private placements (Rule 144a) also face additional governance constraints.

Although these firms are not tied directly to U.S. regulations, they may still benefit from the additional monitoring provided by U.S. intermediaries such as financial analysts or large U.S. institutional investors. As a result, the rigorous U.S. rules, coupled with the increased oversight that accompanies a U.S. listing, may reduce managers' ability to misuse of firms' liquid assets.

To assess whether and how a U.S. listing shrinks the potential for value destruction contained in large cash reserves, we look at investors' valuation of excess cash.[1] Using a sample of firms from more than 40 countries over the period 1989-2005, we find compelling evidence that the value investors place on excess cash is larger for firms that are cross-listed in the U.S. than for their domestic peers. The estimates reveal an economically important excess cash premium. On average, investors' valuation of excess cash is almost three times larger for cross-listed firms. Since investors' valuation is crucially determined by how they expect the cash to be used, the documented excess cash premium unequivocally suggests that investors view a U.S. listing as an efficient device to curb managers' inefficient allocation of cash reserves.

Next, to further characterize this important result, we look at the different avenues that firms have to access the U.S. markets. Specifically, we investigate whether the magnitude of the excess cash premium depends on the listing modality. We observe a strong premium for firms listed on a U.S. exchange. Notably, we also find a sizable excess cash premium for foreign firms listed OTC. However, the estimated premium, although significant, turns out to be smaller than for exchange- listed firms. In sharp contrast, the effect is negligible for firms conducting private placements. Importantly, since only exchange-listed firms are subject to the U.S. legal and disclosure provisions, the documented hierarchy clearly underlines the effect of the U.S. regulatory environment on managers' dissipation of cash reserves. A consequence is that by lessening investors' markdown of liquid assets, the U.S. rules reduce the value loss engendered by weak governance mechanisms.

[1] Specifically, we follow Dittmar and Mahrt-Smith (2007) and define excess cash as cash reserves held in excess of those needed for operations and investment. Then, we estimate the value of this cash using the Fama and French (1998) model.

Nevertheless, given that OTC listings do not entail strong legal and disclosure consequences, our results suggest that investors also view cross-listing as a way to reduce the misallocation risk of excess cash holdings even when no legal rules, enforcement, or threat of litigation are at work. Reassuringly, numerous robustness checks offer persuasive evidence that our conclusions are not sensitive to model specifications, estimation procedure, or biases due to uncaptured growth options.

To reinforce the interpretation of the results, we exploit the temporal and cross-country dimension of our sample. In particular, we examine whether investors' valuation of excess cash changes around the cross-listing date. An event-time analysis shows that investors do raise the value they place on excess cash when firms access the U.S. markets through an exchange or OTC listing. Moreover, we document that this change in investors' valuation persists even several years after the cross-listing event and is still present. Accordingly, investors seem to see a U.S. listing as a commitment that guarantees the efficient use of corporate cash reserves in the long run. Second, additional tests reveal that the excess cash premium is larger for firms located in countries where shareholder protection is weak. Further, regardless of firms' country of incorporation, investors seem to equalize the value they attach to excess cash once firms access the U.S. financial environment. Hence, cross-listed firms truly appear to benefit from similar effective constraints on governance.

Finally, we explore in more detail what alternative mechanisms can explain the reduction of misallocation risk beyond the binding effect of U.S. legal rules. In particular, we examine whether part of the excess cash premium originates in the increased informal monitoring and scrutiny that accompanies a U.S. listing; see Stulz (1999). We start by focusing on the disciplinary role played by financial analysts. Strikingly, we find that investors' valuation of excess cash is magnified when a U.S. listing is accompanied by increased analysts' coverage. The effect of analysts' attention is pervasive across all three types of listings, suggesting that the additional scrutiny offered by financial analysts appears to markedly limit managers' inefficient actions. With analogous logic, we consider the monitoring pressure exerted by large and active shareholders. Mirroring the disciplining effect of financial analysts, we report compelling evidence that investors place a larger value on excess cash when firms' ownership structure tilts toward larger shareholders after the cross-listing event. Taken together, our findings provide clear-cut evidence that the more intense external monitoring that characterizes a U.S. listing substantially reduces the risk that managers will fritter away corporate cash reserves.

Notably, our results suggest that both legal provisions and more intense monitoring complementarily help lessening investors' markdown of liquid assets and, in turn, safeguard investors' money.

Overall, this paper makes a contribution in two distinct areas. First, it adds to the burgeoning literature on corporate cash holdings. By documenting an excess cash premium for cross-listed firms, the analysis broadens our understanding of the value implications of corporate cash reserves. Prior research suggests that the conjunction of large cash holdings and poor governance leads to inefficient allocation and ultimately translates into value loss; see Pinkowitz, Stulz, and Williamson (2006), Dittmar and Marht-Smith (2007) or Kalcheva and Lins (2007). In this paper, we first confirm that investors' valuation of large cash holdings is largely determined by the existence of mechanisms putting boundaries on managerial actions. More importantly, by focusing on *changes* in legal protection and monitoring intensity that accompany a U.S. listing, our analysis highlights the notion that firms can take actions to acquire effective governance devices and hence prune a substantial source of value shortfall. We also provide valuable insights into *which* governance mechanisms enhance the value of corporate cash holdings. Our results suggest that increased investor protection and transparency work hand in hand with better monitoring by market intermediaries to limit the potential misallocation of cash reserves. From a different point of view, our panel data allow us to focus on cross-sectional analysis but also to look at time series patterns. Interestingly, despite many recent governance reforms, our results indicate that investors' valuation of excess cash remains remarkably stable over time. Also, our analysis is in line with theoretical arguments and complements the important work of Dittmar and Mahrt-Smith (2007) by providing estimates of the value of excess cash mainly outside the United States.

Second, our analysis complements the evidence relating U.S. cross-listings and firm value. Indeed, several studies document that cross-listed firms trade at a premium to their domestic counterparts; see Karolyi (2006). Although many authors document that this "cross-listing premium" stems from the better governance practices prevailing in the United States, much less is known about how the U.S. governance standards affect firm value.[2] By concentrating on investors' valuation of excess cash holdings, we are able to demonstrate a direct channel by which the governance dimension of cross-listings operates. Indeed, through

[2] The valuation premium of cross-listing firms has been related to an improvement in the information environment (Lang, Lins and Miller (2004)), to an expanded shareholder base (King and Segal (2007)), and to a reduction in private benefits (Doidge, Karolyi, Stulz (2004) and King and Segal (2007)). The channels through which firm value is enhanced have been less explored. An exception is Doidge, Karolyi, and Stulz (2004), who show that the reduction of private benefits translates into a higher value for growth options. Also Hail and Leuz (2006) propose that legal bonding may affect firm value through a lower cost of capital.

its effect in curbing the potential for value destruction embodied in cash holdings, a U.S. cross-listing clearly helps preserve investors' money. As such, our results suggest that the part of the valuation premium enjoyed by cross-listed firms can be attributed to a larger valuation of liquid assets. In a related perspective, our analysis also pins down indirect mechanisms through which a U.S. listing helps constrain managers. Stulz (1999) first argues that different U.S. financial intermediaries may play a critical role in monitoring cross-listed firms. Whereas this idea has been discussed frequently in the literature, the evidence remains relatively scarce. By highlighting the disciplining effects of greater analyst attention and larger investors, our work empirically supports the existence and efficacy of non-legal governance effects for all cross-listing types.

In the next section, we review the related literature, discuss the theoretical background, and outline our main hypothesis. In section 3, we present the empirical methodology and describe the data. In section 4, we present the results and show that investors' valuation of excess cash increases with cross-listings. We present our conclusions in section 5 and discuss some implications for future research.

2. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

The benefits of holding cash reserves, namely mitigating risk and avoiding underinvestment, may be eroded if firms are poorly governed. This idea emanates from the extensive literature on agency costs initiated by Jensen and Meckling (1976). Accordingly, left on their own, managers may waste corporate resources, thereby destroying firm value. In such a context, firms' cash holdings are especially susceptible to being allocated to managers' private benefits or to being funneled into negative NPV projects.

Several recent studies examine how such a risk of misallocation of firms' cash reserves is reflected into investors' valuation.[3] In an international context, Pinkowitz, Stulz, and Williamson (2006) analyze how country-level legal protection affects investors' valuation of firms' liquid assets. Using several indices serving as proxies for the quality of the institutions protecting investors, they document that in countries where protection is weak, investors value firms' cash reserves at a large discount. By contrast, they find no discount in

[3]Some papers look at how poor governance is linked to the level and use of corporate cash holdings. Harford (1999) shows that cash-rich firms are more likely to make value-decreasing acquisitions. Harford, Mansi and Maxwell (2008) report that firms with expected poor governance actually hold less cash, but that, for a given set of firms with high cash reserves, firms with worse governance spend their cash more quickly, primarily on acquisitions. Dittmar, Mahrt-Smith, and Servaes (2003) show that firms hold more cash in countries where investor protection is weak. Caprio, Faccio, and McConnell (2008) report that corporate cash holdings are negatively related to measures of political corruption. For a more general presentation of the determinants and consequences of corporate cash holdings, see Bates, Kahle, and Stulz (2007).

countries where investors are well protected. Hence, investors associate weak country-level shareholder protection with greater risk that firms' cash reserves will be used inefficiently and, in turn, discount their value. In a similar spirit but focusing on U.S. firms, Dittmar and Mahrt-Smith (2007) report that the presence of antitakeover provisions and low institutional blockholdings lead investors to discount the value they place on corporate cash holdings. Thus, when managers are left widely unchecked, investors' valuation of cash holdings is marked down considerably. From a very close perspective, Kalcheva and Lins (2007) use international data on managerial control rights to measure governance quality. They find that firms' values are lower when entrenched managers hold more cash and country-level investors' protection is weak. Overall, these studies point out that investors recognize substantial potential for ineffective use of corporate cash reserves when institutional protection is feeble or when monitoring instruments are largely missing.

In this paper, we argue that cross-listing in the United States has several features that can reduce or even eliminate the discount that investors place on the value of liquid assets.[4] First, as suggested by Coffee (1999, 2002) and Stulz (1999), a U.S. cross-listing implies important legal consequences. Indeed, by listing on a U.S. stock exchange (NYSE, Nasdaq or AMEX), foreign firms become subject to U.S. disclosure requirements, SEC enforcement, and the threat of litigation by shareholders. In contrast, listing on the OTC market or conducting private placements (Rule 144A) allows substantial exemptions from these laws and regulations. Empirically, several papers provide support for the claim that U.S. cross-listings enhance investor protection. Reese and Weisbach (2002) show that foreign firms that cross-list on U.S. exchanges raise more equity capital after listing and that this effect is magnified for firms located in countries with weak investor protection. Doidge, Karolyi, and Stulz (2004, 2008) find that cross-listed firms have higher valuations than their home-country peers and, further, that the valuation differential is larger for firms located in countries with poor investor protection and for firms listed on U.S. major exchanges. Doidge (2004) reports that exchange- listed firms have voting premiums that are significantly lower than those of their home-country counterparts. Dyck and Zingales (2004) obtain similar results with control premiums. Doidge, Karolyi, Lins, Miller, and Stulz (2007) document that the presence of a large controlling shareholder reduces the likelihood of a U.S. listing. From a different angle, Lel and Miller (2007) estimate that foreign firms listed on a U.S exchange are more likely to replace underperforming CEOs. Finally, King and Segal (2008) provide evidence that both a

[4] A large literature has developed seeking to understand the motivations and benefits of the corporate decision to list shares on overseas exchanges. See Karolyi (1998, 2006) for a detailed survey of the literature.

larger shareholder base and lower consumption of private benefits explain the valuation premium for cross-listed firms.

Stulz (1999) observes that a U.S. cross-listing also brings to bear an important informal monitoring dimension. In addition to being subject to U.S. securities laws, cross-listed firms face extra scrutiny by large active U.S. institutional investors, journalists, and other financial-market intermediaries such as financial analysts, U.S. underwriters, and auditors. Baker, Nofsinger, and Weaver (2002) show that U.S. exchange listings are associated with greater analyst coverage and heightened media attention, and Lang, Lins, and Miller (2003) find that cross-listed firms receive more coverage by analysts and that forecasts for these firms are more accurate than those for firms that are not cross-listed. Moreover, Lang, Lins, and Miller (2004) show that this greater coverage contributes positively to firm value. Similarly, Bailey, Karolyi, and Salva (2006) show that cross-listing leads to an overall improvement in firms' informational environment.

By and large, all these pieces of evidence suggest that the better U.S. legal protection and disclosure practices together with the increased informal monitoring by U.S. watchdogs make it more difficult for managers to waste cash reserves. Accordingly, we first predict that the additional governance layers inherent in a U.S. listing help secure investors' money and so reduce their discounting of firms' cash reserves. More precisely, we conjecture that, other things being equal, the value investors place on the cash that is at risk of being wasted—the *excess* cash—is higher once a foreign firm cross-lists its shares in the United States.

Then, we take advantage of the rich specificities of the cross-listing event to further understand how different governance mechanisms affect investors' valuation of excess cash. First, Pinkowitz, Stulz, and Williamson (2006) and Kalcheva and Lins (2007) report that country-level legal protection is an important driver of investors' markdown of liquid assets. Accordingly, the potential for managers to use cash reserves inefficiently should generally be reduced for firms that benefit from the additional legal protection provided by U.S. institutions. Since only firms listed on a U.S. exchange become subject to the requirements of the U.S. federal securities laws (disclosure, threat of litigation, SEC supervision, and compliance), we hypothesize that investors' valuation of excess cash should be larger for exchange-listed firms than for listings that do not imply important changes in legal exposure (OTC, Rule 144A and London listings). Following this line of thinking, the influence of U.S. laws and monitoring devices on investors' confidence about the adequate allocation of cash reserves should depend on firms' home-country institutions. Indeed, for firms located in countries where legal protection is weak, the benefits from opting for U.S. protection and

increased scrutiny should be substantial. Consequently, we expect investors to perceive such larger benefits and conjecture that their valuation of excess cash should be magnified for cross-listed firms located in countries with poor investor protection.

From a related perspective, Dittmar and Mahrt-Smith (2007) emphasize that discounts are larger on the cash reserves of U.S. firms with limited monitoring exposure. When this result is taken to our cross-listing setting, the findings suggest that the potential management dissipation of cash may also be constrained by the additional scrutiny and informal monitoring that accompany a U.S. cross-listing. Hence, we infer that investor's discounting of excess cash will be reduced to a larger extent for firms that experience the largest increase in monitoring intensity regardless of the avenue through which they choose to cross-list.[5] Specifically, we conjecture that investors' valuation of excess cash should be larger for cross-listed firms that enjoy increased analyst coverage and that become subject to additional monitoring efforts by large investors subsequent to their U.S. listing.

3. METHODOLOGY AND DATA

3.1. Measuring investors' valuation of excess cash holdings

To assess the potential for value destruction contained in cash holdings and to gauge whether and how a U.S. cross-listing helps reduce the danger, we look at investors' valuation of firms' *excess* cash holdings. Following Dittmar and Mahrt-Smith (2007), we define excess cash as the cash that is not needed for firms' operations or investments. Specifically, we determine excess cash as the cash held above a predicted "normal" (or "optimal") level. To compute the normal level, we regress firms' total cash on variables that serve as proxies for genuine motives to hold cash such as hedging needs, growth options, or financing restrictions. Given that firms from different countries may have different reasons to hold cash, we estimate the normal cash specification independently for each country in our sample.[6] Then, we define *XCash* as the residual of these normal cash regressions. We further discuss in the appendix the details of the methodology and the technical motivations for using excess cash instead of total cash. Note, however, that the conclusions of the analysis below are robust to different ways of defining and computing excess cash.

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[5] Bailey, Karolyi, and Salva (2006) point out that increased monitoring can sometimes be more important for OTC-listed firms that for exchange listings. That is, in addition to disclosure and legal implications attached to exchange listings, increased monitoring more tightly bounds on what managers can do with shareholder resources.

[6] For instance, firms from riskier countries may hold more cash because they require a larger buffer to protect themselves against adverse events. Alternatively, cash holdings may be affected by country-level governance variables; see Dittmar, Mahrt-Smith, and Servaes (2003) or Caprio, Faccio, and McConnell (2008).

To measure investors' valuation of excess cash, we draw from the model of Fama and French (1998). Specifically, we regress firm value on our measure of excess cash holdings as well as control variables capturing other sources of value within the firm. Then, to determine whether investors perceive a U.S. listing as a way to improve the efficient allocation of corporate cash reserves, we start by estimating whether their valuation of excess cash differs between cross-listed firms and their domestic peers. Our basic specification is as follows:

$$\begin{aligned} MV_{i,t} = {} & \alpha + \beta_1 Cross\text{-}list_{i,t} + \beta_2 XCash_{i,t} + \beta_3 (XCash_{i,t} \times Cross\text{-}list_{i,t}) + \delta_1 E_{i,t} + \delta_2 dE_{i,t} + \delta_3 dE_{i,t+2} \\ & + \delta_4 dNA_{i,t} + \delta_5 dNA_{i,t+2} + \delta_6 RD_{i,t} + \delta_7 dRD_{i,t} + \delta_8 dRD_{i,t+2} + \delta_9 I_{i,t} + \delta_{10} dI_{i,t} + \delta_{11} dI_{i,t+2} \\ & + \delta_{12} DIV_{i,t} + \delta_{13} dDIV_{i,t} + \delta_{14} dDIV_{i,t+2} + \delta_{15} dMV_{i,t+2} + \eta + \omega + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where *MV*[7] is the market value of the firm, computed as the sum of the market value of equity and the book value of short-term and long-term debt. Our variable of interest, *XCash*, refers to cash held in excess, as defined above. *Cross-list* is a dummy variable that equals one if the firm is cross-listed in the U.S. and zero otherwise.[8] Following Fama and French (1998), we include variables that control for investors' expectations about other sources that determine firm value. Specifically, *E* is the net income plus all noncash charges or credits, extraordinary items, and interest. *NA* is net assets, computed as the book value of assets minus cash and marketable securities. *RD* refers to research and development expenses. When *RD* is missing, we set its value to zero. *I* is interest expenses and *DIV* is common dividend paid. We further control for firm's profitability, financial, and investment policies by including changes in those variables' level. The notation dX_t refers to the change in variable X_t from year *t-2* to year *t*. Likewise, dX_{t+2} represents the change in variable X_t from year *t* to year *t+2*.[9] To make firm attributes comparable, we normalize all firm-specific variables by the book value of total assets.

[7] For ease of notation, we drop the subscripts that refer to the firm *i* and respectively year *t*.
[8] In further analysis, we also consider the three different cross-listing avenues separately (Exchange, OTC and Rule 144A).
[9] We aim to capture firm profitability and expected profitability growth given firm existing assets with a cash flow variable and two-year lead and lag changes in cash flows. We include past and future changes in net assets to capture another dimension of profitability that is a consequence of net investment. We add *RD*, and the corresponding lead and lag changes, to pick up additional information on expected profits not captured by the earnings or investment variables. *I*, *D* and its past and future changes aim to capture the firm's financing policy, which also affects the value of the firm.

Importantly, the literature on cross-listings suggests that firms that cross-list in the U.S. may have better growth opportunities than domestic firms; see Doidge, Karolyi, and Stulz (2004). Hence, if the control variables used by Fama and French (1998) fail to capture completely the effect of growth options on firm value, our estimates of the value of excess cash for cross-listed firms (β_2 and β_3) may convey information about growth opportunities that are specific to cross-listed firms.[10] To mitigate this concern, we include two extra proxies for growth opportunities in our baseline regression (1): *Sales Growth* and *Global Industry q*.[11] *Sales Growth* is the percentage change in sales from *t-2* to period *t* and *Global Industry q* is the median market-to-book ratio of all firms that share the same SIC code.[12] Moreover, we control for differences in firms' value that stem from periods and countries' economic and institutional environments by including year ($\boldsymbol{\eta}$) and country ($\boldsymbol{\omega}$) fixed effects. Finally, since firm value may change with cross-listing for reasons other than the effect on excess cash and the control variables, we include a separate intercept for cross-listed firms (*Cross-list*).

Theory predicts that unchecked managers may waste free cash flow; see Jensen (1986). In this spirit, we follow Dittmar and Mahrt-Smith (2007) and focus only on firms that hold too much cash that is easily accessible to management. Accordingly, we estimate our value regression (1) for all firms with *positive* excess cash.[13] To the extent that the control variables effectively capture investors' expectations about future net cash flows and firms' growth options, the coefficient on *XCash* (β_2) measures investors' valuation of an additional unit of excess cash. In other words, this coefficient reflects the magnitude of the potential for value destruction (or creation) perceived by investors. With a similar logic, the coefficient on the interaction between *XCash* and the cross-listing dummy (β_3) enables us to assess whether the value of excess cash differs between firms that are cross-listed in the United States and their domestic peers.

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[10] Note that this possibility is one benefit of using excess cash rather than total cash. Indeed, as discussed in Dittmar and Marht-Smith (2007) and in the appendix, when we estimate excess cash, we use instrumental variables to deal with the potential endogeneity between cash and growth options. Hence, our measure of excess cash is by construction orthogonal to investment opportunities.

[11] The use of these control variables for growth opportunities is motivated by studies such as Doidge, Karolyi, and Stulz (2004).

[12] In the following sections, we implement additional robustness checks and show that our conclusions are not driven by the effect of growth options that may be specific to cross-listing firms.

[13] Predictions about the role of incentive and governance mechanisms for firms having negative excess cash, i.e., a cash shortage, remain a theoretical issue and hence are difficult to establish.

3.2 Data and descriptive statistics

The construction of our sample starts with all non-U.S. firms covered by Worldscope.[14] For each firm, we collect cash, market value, and variables that serve as proxies for firm profitability and financial and investment policy for the period 1989-2005. All variables are measured in local currency units. Then, we exclude financial firms (Standard Industrial Classification (SIC) codes between 6000 and 6999) and utilities (SIC codes between 9000 and 9999) because their businesses imply holding marketable securities and statutory capital requirements that may affect their investment choices. We also exclude firms for which information on cash and marketable securities, market value of equity, earnings before interests and taxes, interest expenses, or total assets is missing. To reduce the effect of outliers, we trim our sample at 1 percent in each tail of each variable.

Next, we classify firms as (a) firms cross-listing in the United States and (b) benchmark firms that have never cross-listed their shares in the United States. Because of the various avenues that foreign firms can take to access the U.S. market and the differences in their legal and regulatory consequences, we differentiate between exchange listings (NYSE, Nasdaq and AMEX), over-the-counter listings (OTC) and private placements under Rule 144A. We obtain cross-listing information (whether a firm has a foreign listing in the United States at the end of each year and the type of listing) from the Bank of New York, JP Morgan, Citibank, NYSE, Nasdaq, and the Center for Research on Security Prices (CRSP).[15] To mitigate the concern about survivorship bias, we keep track of both active and inactive listings using the data provided by Citibank and CRSP. We also trace the listing type upgrades or downgrades, from OTC to exchange listing, for instance, using the information provided by Citibank. We manually contrast and complete the cross-listing dates and types by searching on Lexis/Nexis.

To characterize the effects of cross-listings on the value of excess cash, we employ several proxies for governance quality and monitoring intensity. First, we use a number of country-level variables in our analysis. Specifically, we consider the anti-director rights index presented by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998), which measures the quality of legal protection offered to minority investors. This index, based on laws prevailing in 1993, is available for 49 countries.

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[14] We note that Worldscope tries to homogenize accounting data of firms subject to different accounting standards in a way that makes them more comparable. However, we remain conscious of the limitations of comparing accounting data for firms from different countries.

[15] See, for example, www.adrbny.com, www.adr.com. and www.citibank.com/adr.

From the same source, we take the accounting index to assess the effect of lack of transparency. In addition, we use two variables from Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2006). First, we consider the revised anti-director rights index, which is compiled using laws prevailing in 2003, and second, the anti-self-dealing index, which focuses on the expropriation that minority shareholders may suffer from insiders (self-dealing). This latter index focuses more on the protection that shareholders receive in case of expropriation by corporate insiders and gives special attention to the level of disclosure. Investor protection tends to be highly correlated with measures of economic development. Hence, we also use the classification scheme of Standard and Poor's Emerging Market Database[16] to categorize countries as developed or emerging economies.

At the firm level, we use two variables as proxies for the intensity of outside monitoring. First, we use analyst following to capture external monitoring pressure; see Jensen and Meckling (1976), Lang, Lins, and Miller (2004), or Yu (2007). We collect information on analyst coverage for our sample firms from the I/B/E/S International Summary file. Specifically, we define *Coverage* as the average number of analysts issuing forecasts during a given year. Our second monitoring proxy captures the structure of a firm's ownership**.** Prior research indicates that large shareholders have enough capital at stake to have an incentive to monitor and influence managers' actions; see for instance Gillian and Starks (2000) or Gompers and Metrick (2001). To measure investor oversight, we use the data item reported as "Closely held shares" in Worldscope. Closely held shares *(CHS)* is defined as the percentage of shares held by insiders, who include senior corporate officers and directors, and their immediate families; shares held in trusts; shares held by another corporation (except shares held in a fiduciary capacity by financial institutions); shares held by pension and benefit plans; and shares held by individuals who hold 5 percent or more of shares outstanding.[17] Hence these blockholdings can be considered a measure of how much oversight managers are subject to, with a larger percentage indicating more intense monitoring.

[16] The Standard and Poor's Emerging Market Database classifies a market as emerging if it meets at least one of two general criteria: (1) it is located in a low- or middle-income economy as defined by the World Bank, and (2) its investable market capitalization is low in relation to its most recent GNP figures. This yields a few situations in which newly rich countries (such as Taiwan and Korea) are categorized as emerging markets. The classification is based on 1998 data.

[17] In Japan, closely held shares represent the holdings of the ten largest shareholders. For firms with more than one class of shares, closely held shares for each class are added together. We recognize the limitations of this ownership measure, since it relies on information disclosed by firms and this disclosure is often voluntary and unmonitored.

Finally, in further tests, we consider the extent to which firms raise external capital around the cross-listing event. For that purpose, we gather information about security issuance from the Securities Data Corporation (SDC). SDC contains the date and type of issue, the market (country) in which the security was issued, and the proceeds from each issue. Since we are interested in tracking issuance activity around the U.S. listing event, we follow Doidge, Karolyi, and Stulz (2008). comparing the issuance dates with the cross-listing dates and considering only issuance within three years of the listing. Further, we put together all capital-raising activity, that is, all public and private equity and debt issued at home and in the United States as well as in other markets.

Insert Table 1 about here

Table 1, Panel A, describes the composition of our final sample for cross-listing firms and firms that never cross-list (the benchmark). The sample consists of 868 foreign firms (7,068 firm-years) listing shares in the United States. In terms of the repartition across the three cross-listing types, our sample comprises 337 firms (3,071 firm-years) listed on U.S. exchanges, 354 firms (2,999 firm-years) listed OTC and 177 firms (998 firm-years) listed through private placement under Rule 144A. The benchmark sample contains 11,554 firms, which represents 53,569 firm-years. The sample has considerable geographic dispersion. Firms are located in 44 countries, of which 22 are emerging markets, and spans 16 years. There are 533 cross-listing firms (7,648 benchmark firms) from developed markets and 335 cross-listing firms (3,906 benchmark firms) from emerging markets.

Panel B provides information on the composition of our sample classified by the various country-level measures of investor protection that we have introduced previously and by the change in capital-raising activity around the cross-listing event. Overall, our sample includes a broad cross-section of firm-years and firm characteristics suitable for our empirical investigation.

In Panel C, we present descriptive statistics for the main variables used in the subsequent analysis: excess cash, total cash, market value, analyst coverage, closely held shares and capital raised. For cross-listing firms, we present the statistics for both the period before and after the U.S. listing. We note a slight increase in the level of excess cash after foreign firms access the U.S. markets. In contrast, we note a significant difference in the level of excess cash between cross-listing firms and domestic firms. When we look at total cash, we observe no difference between cross-listing and benchmark firms. Those descriptive results are consistent with the view that cross-listing firms are the

ones that use additional cash and hence need to signal to investors that their money will be used efficiently; see Doidge, Karolyi, Lins, Miller, and Stulz (2007).[18] Turning to firm value, we note several interesting points. First, consistent with Doidge, Karolyi, and Stulz (2004), the average and median firms' market values are larger for cross-listed firms than for benchmark firms. Moreover, we observe a pecking order in market values by type of listing. Indeed, the average and median market value of exchange-listed firms is larger than that of OTC firms, and finally than that of firms listing through Rule 144A. Also, in line with Doidge, Karolyi, and Stulz (2008), we see that the market value is greater before a firm cross-lists than after. This result emphasizes the crucial need to control correctly for the effect of growth opportunities when measuring the effect of cross-listing on firm value, and more particularly on the value of excess cash. Consistent with the figures reported in Bailey, Karolyi, and Salva (2006) or Lang, Lins, and Miller (2004), we observe an increase in analyst following once foreign firms access the U.S. markets. Turning to ownership structure, we note a slight decrease in closely held shares for firms cross-listing on an exchange or OTC but a significant increase for firms choosing private placement. A Kruskal-Wallis test indicates that the ownership structure differs among the three types of listing both before and after the listing event. Finally, the last part of Panel C clearly shows that cross-listing firms increase their issuance activity after accessing U.S. markets. On average, they raise 70 percent more capital once listed in the United States.

4. MAIN RESULTS

4.1. Comparison of cross-listed with non-cross-listed firms

To test the hypotheses that we delineate in section 2, we start by estimating investors' valuation of excess cash for the whole sample and report the results in table 2. The regression estimate uses pooled OLS, and the reported t-statistics are based on heteroskedasticity-corrected standards errors that are clustered at the firm level. Column (1) first shows that the marginal value of excess cash is 0.589 for our benchmark sample. The magnitude of this estimate is in line with Pinkowitz, Stulz. and Williamson (2006) and confirms that liquid assets are valued at a discount worldwide (outside the United States).[19] Next, we observe that the coefficient on *XCash* × *Cross-list* is positive and statistically significant. This central result indicates that investors value the excess cash of cross-listed firms at a premium of 0.910

[18] Alternatively, it might indicate that cross-listing firms have a special need for cash that is absent from our "normal" cash specifications. However, this pattern remains even when we change the normal cash specification.

[19] Pinkowitz, Stulz, and Williamson (2006) do not report an estimate of the value of cash for their whole sample. Splitting their sample by the degree of country investor protection, they report estimates of 0.39 for the low anti-director-rights index and 1.17 for the high anti-director-rights index. Moreover, they report estimates of the value of cash, whereas we present estimates of the value of *excess* cash.

compared with their market peers.[20] This estimate reveals that on average investors' valuation of excess cash is almost three times larger for cross-listed firms. Hence, confirming our prediction, investors seem to view a U.S. cross-listing as an effective instrument for limiting managers' misallocation of corporate cash reserves, and thus increase the value they place on liquid assets.

Insert Table 2 about here

Next, to gain more insight into the mechanisms driving up investors' valuation, we distinguish between firms that list shares on U.S. exchanges, those that list in the OTC market, and those that access the U.S. market through Rule 144A. As recognized in the cross-listing literature[21], the avenues available for accessing U.S. markets differ mostly in legal constraints and disclosure requirements. Whereas an exchange listing implies full registration with the SEC, and makes firms liable to U.S. disclosure and legal rules, OTC listings and Rule 144A have much lower disclosure and legal implications. On this ground, if investors associate the three listing types with different intensity in the reduction of managers' risk of misallocation, they should value excess cash accordingly. To gauge this claim, we replace *Cross-list* by separate dummy variables representing each listing type and interact these dummies with *XCash*. Specifically, *Exchange* equals one if a foreign firm is listed on a U.S. exchange (levels 2 and 3) and zero otherwise. *OTC* equals one for firms listed over-the-counter (level 1) and zero otherwise and, by corollary, *144A* equals one for firms that are listed in the U.S. through private placements (Rule 144A).

Column (2) of table 2 clearly reveals that the magnitude of the excess cash premium differs across listing types. We observe the largest effect for exchange-listed firms, with a large, positive, and statistically significant coefficient of 1.023.

[20] A value of cash larger than one could reflect the cost of raising additional capital in the presence of profitable growth opportunities or differential corporate and individual taxes. See Pinkowitz, Stulz, and Williamson (2006), Falkender and Wang (2006,) and Dittmar and Mahrt-Smith (2007).
[21] See for instance Doidge, Karolyi, and Stulz (2004, 2008) or Bailey, Karoyi, and Salva (2006).

Consistent with our hypothesis, investors seem to recognize the increased legal and disclosure requirements attached to a U.S. exchange listing and consequently place additional value on firms' excess cash reserves. Column (2) also displays a positive excess cash premium for foreign firms that have OTC listings. Even though the effect appears to be smaller than for exchange-listed firms, our estimates indicate that investors also consider OTC listings a tool to improve the efficiency of corporate cash allocation. Turning to Rule 144A, the coefficient is indistinguishable from zero. Accordingly, investors do not seem to perceive any reduction of misallocation risk for this type of listing. In columns (3) to (5), we redo a similar analysis but consider each cross-listing type separately. Reassuringly, these additional estimations continue to show a relative premium in investors' valuation of excess cash for both exchange- and OTC-listed firms.

Overall, the differences in investors' valuation of excess cash suppor the view that U.S. cross-listings have an important influence on managers' potential ability to use cash reserves inefficiently. In particular, the strong excess cash premium we observe for exchange-listed firms corroborates recent findings that stringent laws and disclosure requirement put additional bounds on managers' actions and hence help reduce the risk of inefficient behavior. A consequence is that by lessening investors' markdown of liquid assets, a U.S. exchange listing reduces part of the value loss engendered by weak governance mechanisms. Interestingly, our results highlight that investors also perceive OTC listings as making it harder for managers to waste corporate liquid resources. Notably, since OTC listings have very few legal repercussions and do not comprise additional disclosure requirements, our findings suggest that investors associate OTC listings with other governance constraints.

4.2 Sensitivity analyses

Before exploring more in detail what explains the excess cash premium, and in particular why we observe such an important effect for OTC firms, we want to make sure that our inference is not misstated. For that, we extend our analysis in several dimensions. In this section, we examine whether our results are robust to changes in our model specification and estimation procedure. The outcome is reported on table 3. We start the first set of tests by changing our variable of interest. Following Pinkowitz, Stulz, and Williamson (2006), we reestimate our valuation model by using the level of cash and changes in cash instead of excess cash. Specifically, *Cash* is defined as cash and marketable securities over total assets,

while $\Delta Cash_t$ refers to the yearly change in total cash.[22] In columns (1) and (2) of table 3, we note that our results are robust to this change. We observe that investors' valuation of cash is twice as large for exchange listings as for OTC listings, and, again, we find no premium for the less demanding cross-listing option.[23]

Insert Table 3 about here

We continue by reestimating model (1) without firms from the U.K. and Japan. Given that those two countries comprise the greatest number of observations in our sample, a legitimate concern is that British and Japanese firms drive our results. As we notice in column (3), our results are virtually unchanged when we exclude the U.K. and Japan. In column (4), we extend our sample to include all firms and not only those with positive excess cash. Precisely, when a firm-year has negative excess cash we consider that the firm is operating at the optimal level (otherwise it could not operate) and set *XCash* equal to zero. We note that expanding our sample has no significant impact on our estimations. Next, we note that in our model the slope parameters on the profitability variables could be viewed as discount rates, which may be subject to change around cross-listing; see Karolyi (2006) and Hail and Leuz (2006).[24] If this is the case, imposing the same slopes on all variables, as we do in our basic specification, would be inadequate. To correct for that, in column (5) we interact all slope parameters on the control variables with the listing dummy *Cross-list* and alternatively, in unreported results, with each cross-listing type. This modification has no impact on our conclusions.[25]

[22] From the univariate tests, we know that the level of cash decreases slightly subsequent to a U.S. listing. So, using changes in cash turns out to be robust to the potential effects of cash-level variations.

[23] All estimations presented in this paper for *XCash* are computed also for *Cash*. Results are available upon request.

[24] We note that the estimated change reported in the literature is rather modest. Doidge, Karolyi, and Stulz (2004) argue that "there is some support in the event study literature for the argument that listing in the U.S. reduces barriers to owning the stock and therefore decreases the listing firm's cost of capital, but this support is rather limited"." Recently, Hail and Leuz (2006) document that the reduction in the cost of capital explains only part of the valuation premium of cross-listed firms.

[25] A potential drawback with our model is that it does not account explicitly for differences in capitalization rates across firms. However, we note that the model has been shown to perform about asd well as a model that relates abnormal returns to changes in firm characteristics; see Dittmar and Mahrt-Smith (2007) and Faulkender and Wang (2006). In addition to letting the cost of capital change around cross-listing, we implement another test to see whether our specification poses a problem. We estimate regressions (where the variable of interest is the level of cash) separately for two groups of firms that are sorted to have more similar costs of capital. We sort by size (large versus small) and by firm-specific betas (high versus low). We observe that some of the slopes on control variables do differ across specifications, but the estimated responses of value to cash holdings are similar across groups and do not have any effect on our conclusions.

Subsequently, we reassess our base model (1) following alternative estimation procedures. In column (6), we follow previous studies and reestimate the model using the Fama and Macbeth (1973) approach.[26] Although the magnitude of the estimates differs slightly, these changes have no bearing on our conclusions. Finally, in columns (7) and (8) we address concerns about the potential endogeneity of the cross-listing decision. Since firms choose to list in the United States, our sample of cross-listed firms may not be random. To mitigate this issue, we estimate self-selection Heckman-type models, where the first stage models a firm's decision to cross-list and the second stage refers to our baseline valuation specification (1). For the first-stage estimation, we follow prior studies in our choice of instruments and include size, leverage, sales growth, the industry median market-to-book ratio, the anti-director-rights index, and year fixed effects; see for instance Doidge, Karolyi, and Stulz (2004) or Bailey, Karolyi, and Salva (2006). Column (7) reports the second-stage regression results where *Cross-list* is the choice variable in the first stage. Alternatively, column (8) presents results where *Exchange*, *OTC*, and *144A* are the first-stage choice variables, respectively.[27] Although the significance of the estimated Mills ratios indicates the presence of a selection bias, we still observe that investors' value the excess cash of exchange and OTC listed firms at a premium.

Taken together, our conclusions remain robust to different measures of cash, different specifications, and different estimation techniques. Investors truly perceive U.S. exchange and OTC listings as effective devices to enhance the efficient use of cash holdings, and hence protect their investment.

4.3. Further tests to control for growth options

As we mention earlier, an important concern relates to the potential misleading effect of uncaptured growth options. It is plausible that we are associating a higher value of excess cash with a lower risk of misallocation of excessive cash balances when in fact our results could also be driven by increased growth options that are particular to cross-listing; see Faulkender and Wang (2006) and Pinkowitz and Williamson (2005). Recall that to mitigate this concern, we have already included explicit control variables (Sales Growth and Global Industry q) in our valuation regressions and we employ excess cash, an instrumental measure for growth opportunities.

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[26] See, for instance, Pinkowitz, Stulz, and Williamson (2006) and Pinkowitz and Williamson (2005). However, to the extent that our sample covers a short period (13 years) plus the fact that we have few observations for firms that hasve recently cross-listed, we think that pooled OLS is the appropriate estimation procedure.

However, to truly rule out the possibility that uncaptured growth options contaminate our estimates of investors' valuations of excess cash, we perform two additional tests.

First, we draw from Faulkender and Wang (2006), who show that cash reserves are more valuable to financially constrained firms that face important growth opportunities. To address this possibility, we split cross-listed firms into two groups based on their capital-raising activity around the cross-listing event. In doing so, we presume that firms experiencing the largest expansion of their investment opportunity set and facing financing constraints are the ones that increase their capital- raising activity when accessing the U.S. markets. Hence, if our excess-cash estimates reflect uncaptured growth options, we should find a premium on the value of excess cash only for firms that increase their capital issuance activity. The results for the two partitions reported in columns (1) and (2) of table 4 contradict this claim. Indeed, while investors' valuation of excess cash turns out to be larger for firms that increase their capital-raising activity around the cross-listing date, column (2) reveals that the investors' valuation of excess cash continues to be larger for exchange- and OTC- listed firms even when they keep their issuance activity constant. These results indicate that increased growth options do seem to affect investors' valuation of excess cash, but they still highlight the importance of governance constraints imposed by the U.S. market environment. Notably, column (2) reveals that the estimated excess cash premium for exchange cross-listed firms is 0.54. Since it is purged from the effect of growth options, this estimate can be considered as a cleaner measure of the premium that investors really attach to excessive liquid assets.[28] Similarly, the premium for OTC listings is 0.40, but it is only marginally significant. This suggests that part of the effect uncovered for OTC listings could be attributable to growth options.

To further assess the potential effect of growth options on our conclusions, we compare investors' valuation of excess cash for cross-listed firms with that of a representative sample of U.S. firms that are available in Worldscope.[29] If expanded growth opportunities that are particular to cross-listed firms are really driving our results, the value of excess cash should be larger for cross-listed firms than for comparable U.S. firms. In column (3) of table 4, we compare the value of excess cash between cross-listed and U.S. firms. First, we observe that investors' valuation of excess cash for U.S. firms is around 2.34. This is consistent with the estimates of Dittmar and Mahrt-Smith (2007), who report coefficients larger than 2.00 for well-governed U.S. firms.

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[27] Results from the first-stage probit estimations are available upon request.
[28] We thank the referee for suggesting us this interpretation.

The main result to notice is that, for the three cross-listing avenues, investors' valuation of excess cash never exceeds that of U.S. firms. This strong result provides confidence that our conclusions are robust to the effect of growth options that are not well captured by our original control variables. Interestingly, we note that the value of excess cash for exchange-listed foreign firms is virtually no different than that for U.S. firms, as the coefficient on *XCash×Exchange* is not statistically significant. However, investors appear to discount the value of liquid assets for OTC-listed firms. Regarding 144A cross-listings, those show the largest gap in the valuation of liquid assets with respect to U.S. firms. These results suggest that, while investors associate OTC cross-listing with *de facto* improvement in the use of corporate cash resources, they still believe that managers of those firms enjoy larger discretion than the managers of comparable U.S. corporations.

All in all, our results are robust to various tests that attempt to mitigate concern about the effect uncaptured growth options may have on our estimated coefficients. In the following sections, we explore supplementary predictions of our hypothesis and extend our analysis to embrace dynamic features.

4.4. Change in the value of excess cash (pre- versus post-cross-listing)

So far, our results indicate that on average, investors place a larger value on the excess cash of foreign firms that have U.S. exchange or OTC listings than on that of domestic firms. In this section, we further characterize this result by examining the dynamics of the relation between U.S. cross-listings and investors' valuation of excess cash in event time. Looking at whether and how investors' change the way they expect cash to be used around the cross-listing event is important for at least two reasons. First, if investors really perceive U.S. rules, requirements, and other features as efficient tools for guaranteeing the adequate use of corporate cash resources, then the additional value they place on firms' excess cash should increase after the cross-listing date and be sustained in the long run. Second, looking at investors' valuation of excess cash mainly outside the window of years surrounding the listing event minimizes the concern that our estimates are contaminated by financing, investment, or operating events that occur contemporaneously with the cross-listing date.[30]

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[29] We are especially grateful to Christian Leuz for suggesting this test to us.
[30] We thank the referee for raising this important point.

In table 5, we exploit the dynamic nature of our data set and examine how investors' valuation of excess cash *changes* over cross-listings. To do so, we start by creating "event time" dummy variables. In particular, *Before* equals one before a firm cross-lists in the United States and zero otherwise. Similarly, *After* takes a value of one once a firm is cross-listed in the United States and zero otherwise. Then to assess whether investors' valuation of excess cash increases over the cross-listing event, we reestimate our baseline model (1) but interact *XCash* with the listing-type dummies together with the two event-time dummies. Our specification now stacks firm-year observations of cross-listing firms before and after they access U.S. markets as well as those firms that never cross-list.

Insert Table 5 about here

Column (1) presents the estimation results. We clearly observe that the coefficient on *XCash*× *Before* is not statistically different from zero.[31] Hence, in terms of risk of cash misallocation, investors do not seem to distinguish between firms that are going to cross-list and those that never cross-list. However, the positive and significant coefficient on *XCash*×*Exchange*×*After* and *XCash*×*OTC*×*After* indicate that investors do raise the value they place on excess cash once firms become listed on a U.S. exchange or over-the-counter.

Next, we further split the *After* variable into additional event-time dummies that better trace cross-listing patterns. Specifically, *After1* in column (2) equals one for cross-listed firms during the three years following their U.S. listing and zero otherwise. Similarly, *After2* equals one for firms that have been cross-listed for more than four years and zero otherwise. Column (2) presents the additional event-time results and contains several important findings. First, for each type of listing, there is a large increase in investors' valuation of excess cash in the years following the listing. The magnitude of the upsurge is especially large for OTC firms (1.366 with a t-statistic of 4.23). Second, the value of excess cash appears to decline in the years following the listing event. However, for exchange- and OTC-listed firms, the excess cash premium crucially remains positive and statistically significant even beyond three years after the listing.

[31] In unreported results, we also try to interact *XCash*×*Before* with each cross-listing type, but all the corresponding coefficients are not statistically different from zero.

Further, F-tests confirm that this long-term effect is significant for both exchange- and OTC-listed firms.[32] In contrast, for Rule 144A listings, investors do not add a permanent premium on firms' free cash reserves. In column (3), we repeat a similar analysis but change the event-time pattern slightly. Specifically, *After1* in column (3) equals one for cross-listed firms during the two years following their U.S. listing and zero otherwise. Similarly, *After2* equals one for firms that have been cross-listed for more than three years and zero otherwise. We obtain virtually the same results.

In summary, we find that investors do raise the value they place on cash reserves when firms choose to benefit from the U.S. market environment through exchange or OTC listings. Moreover, the change in investors' perception of the potential for misallocation contained in cash reserves remains substantial even several years following the cross-listing event. This suggests that investors envision that a U.S. listing constrains managers' wasteful actions in the long run and therefore really enhances the efficient use of cash.

4.5. Does the country of origin matter?

In this section, we examine whether and how firms' home-country institutional traits drive investors' perceptions of the governance benefits created through a U.S. cross-listing. Indeed, previous results show that the U.S. financial environment enhances overall investors confidence about the adequate allocation of cash reserves. In this context, one might expect that the documented efficiency gains depend largely on the ability of home-market institutions to constrain managers' potential misuse of cash. To investigate this claim, we split our sample into subgroups by using proxies for home-country institutions' quality. Then, we estimate investors' valuation of excess cash separately for each subgroup. The first partition divides the sample into firms from countries where investor protection is weak, that is, the anti-director-rights index is below three (*Low*), and those from countries where the index is greater to or equal to three (*High*). Concerning the accounting, anti-self-dealing, and revised anti-director-rights indices, we assign firms to the *Low* protection groups if these indices are below their median. Likewise, we assign firms to the *High* protection groups if the respective indices are above their median values. Finally, we consider the difference between developed and emerging countries.

[32] Specifically, we obtain the result that the coefficient *XCash*× *Before* is statistically different from *XCash*×*Exchange*×*After2* both in column (2) and in column (3).

Table 6 reveals which firms seem to benefit more from the U.S. listing. Consistent with Pinkowitz, Stulz, and Williamson (2006), investors place a substantial discount on the value of excess cash for firms located in countries with weak institutional protection. However, unlike Pinkowitz, Stulz, and Williamson (2006), we note that the value of excess cash is discounted below its face value in countries with higher investor protection and transparency. This discrepancy might originate in the fact that we consider the investors' valuation of free cash flow, i.e., excess cash, while Pinkowitz, Stulz, and Williamson (2006) estimate the value of total and changes in cash.

Insert Table 6 about here

Turning to the effect of cross-listing, all specifications provide evidence that investors value the disciplining effect of a U.S. listing more if firms are incorporated in a country characterized by feeble institutions. More specifically, column (1) presents regression results for poor-protection countries according to the anti-director-rights index. For non-cross-listed firms, we estimate that the value of excess cash is 0.50, which is far below its face value. In sharp contrast, our estimates reveal that investors' valuation of excess cash is significantly larger for firms cross-listed in the United States. Again, we continue to observe the largest effect for exchange-listed firms but a significant effect for firms accessing U.S. markets through OTC listings. Columns (3), (5), (7), and (9) show similar patterns when we use the anti-self-dealing index, the revised anti-director-rights index, the accounting indices, and the level of economic development respectively. It is worth noting that the coefficients on *XCash* are at a discount across all specifications, but the importance of this discount differs slightly, depending on the measure of institutional quality that we use. Nonetheless, our results hold regardless of the index we consider.

When we consider the group of firms located in countries with strong institutions, columns (2), (4), (6), (8). and (10) offer a different picture. If we look at the estimates on *XCash*×*Exchange*, we see that investors also upgrade their valuation of excess cash for exchange-listed firms but to a lesser extent than for firms in the *Low* group. When we look at the estimates on *XCash*×*OTC*, the picture is not as clear-cut. Indeed, in some specifications the coefficient is only marginally significant, while it is still positive and significant in others.

Given that the value investors place on excess cash holdings appears to be related to the quality of the home-market institutions, a relevant question is whether cross-listing

eliminates the pre-existing differences. To examine whether the value of excess cash of all foreign firms cross-listing under the same modality is similar regardless of their country of incorporation, we perform two-sample tests. More precisely, we test whether *XCash + XCash×Exchange* is significantly different between the *Low* and *High* groups. A similar test is computed for OTC and 144A listings. We find that across the various cross-listing avenues there is no significant difference in investors' valuation of excess cash between the *Low* and *High* groups. This indicates that investors perceive the risk of misallocation of excessive corporate resources to be similar across cross-listed firms. regardless of the quality of their home-market institutions. In essence, cross-listed firms subject to the same U.S. requirements are viewed as having on average a similar level of governance constraints.

Our findings clearly confirm the view that the U.S. financial markets provide efficient mechanisms for limiingt the misallocation of investors' funds. Indeed, we report that the securing effect of cross-listing is magnified for firms located in poorly protected environments. From a different perspective, our results importantly highlight that country characteristics are important determinants of corporate governance. As a matter of fact, by pulling themselves out of their legal environment, cross-listed firms seem to partially sidestep their home-country institutions. Our analysis shows that investors associate this positive signal with a reduced risk of managers' wasteful actions. In this respect, we substantiate the study of Doidge, Karolyi, and Stulz (2007), who demonstrate that country characteristics explain much more variation in governance rating than observable firm characteristics.

4.6. What are the governance mechanisms at work?

Hitherto, we have found compelling evidence that investors associate U.S. exchange and OTC listings with a cutback in managers' unproductive allocation of cash resources. However, unlike those listing on exchanges, foreign firms opting for an OTC listing are not subject to U.S. disclosure requirements, SEC enforcement, or shareholders' litigation threat. Hence, our results indirectly suggest that governance mechanisms beyond legal protection effectively drive investors; perceptions.

To further strengthen this interpretation, we look at investors' valuation of excess cash when foreign firms are cross-listed in London. Listing shares on the London Stock Exchange does not subject firms to the U.K. legal rules and requires a weaker governance commitment than a U.S. exchange listing. In essence, a London listing can be compared with an OTC listing in terms of requirements, and hence enable us to further assess the effect of legal changes on managers' misuse of cash. We gather cross-listing information from the London

Stock Exchange[33]. Some firms in our sample have both a London listing and some type of U.S. listing. Since U.S. listings are more restrictive, we consider only firms that are not simultaneously cross-listed in the U.S. We thus have 671 firm-year observations, representing 99 firms from 23 countries that meet our data requirements. We rerun model (1) for London cross-listings and the benchmark sample. Column (4) of table 7 shows the results of the estimation. As with OTC listings, we observe that investors value liquid assets of firms cross-listed in London at a premium compared with their home-country peers. As expected, the magnitude of the premium is much smaller than the one we obtain for U.S. exchange-listed firms, but it is still significant at the 10 percent level. This finding confirms that investors view cross-listing in larger and more liquid markets as an instrument for limiting management's wasteful actions, even when no legal rules and public enforcement are at work.

Overall, our results are in line with Stulz's (1999) argument that U.S. cross-listings might also discipline managers through the pressure of increased monitoring and scrutiny by various market participants. Accordingly, it might be that part of the documented premium investors place on excess cash stems from the increased monitoring and scrutiny that accompanies a U.S. listing. The cross-listing literature has suggested that mechanisms such as a stronger market for corporate control (Doidge, 2004), increased scrutiny by financial analysts and sophisticated investors (Baker, Nofsinger, and Weaver, 2002, Lang, Lins, and Miller, 2003), increased voluntary disclosure (Bailey, Karolyi, and Salva, 2006), or broader media coverage (Dyck and Zingales, 2004) might be at work. To further understand what factors induce investors to change their perception of misallocation risk with cross-listing, we focus on the potential monitoring role played by financial analysts and large institutional investors.

First, we use the change in analyst following around cross-listing to capture changes in external monitoring pressure. Indeed, as shown in Lang, Lins, and Miller (2004) and Yu (2007), by providing coverage and information, analysts play a significant role in disciplining management. In this spirit, we create the variable ΔCoverag,e defined as the difference between the three-year average coverage after the cross-listing event and before the cross-listing event.34 Then, to assess whether investors' valuation of excess cash reflects the potential monitoring role of financial analysts, we reestimate our valuation regression by adding the interaction between ΔCoverage, XCash and our three cross-listing dummies. Column (1) of table 7 presents the results. Remarkably, the estimated coefficients on XCash

[33] The list of international firms listed in London is available at www.londonstockexchange.com

interacted with all cross-listing types and ΔCoverage are significantly positive. These estimates essentially highlight that part of the reduction in the potential inadequate use of cash is triggered by the additional analyst coverage that characterizes a U.S. listing. Notably, the coefficient on XCash×144A× ΔCoverage is also significant. This surprising result indicates that, to the extent that a listing through Rule 144A comes with additional analyst coverage, investors react and increase the value they place on excess cash. This latter result provides unambiguous evidence that the enhanced analyst coverage helps increase investors' trust.

Insert Table 7 about here

In column (2), we perform a similar analysis but consider the percentage of large shareholders as an alternative measure of monitoring. Prior research suggests that large shareholders have enough capital at stake to have strong incentives to monitor and discipline managers; see, for example, Gillian and Starks (2000) or Gompers and Metrick (2001). On this ground, if the ownership structure shifts toward larger and active shareholders when foreign firms cross-list in the United States, investors may feel that their money is better protected, even if no legal or institutional constraints tie managers' hands. We use closely held shares (*CHS*) as a proxy for large shareholders' oversight. Again, we consider changes in ownership structure by taking the difference between the three-year average pre- and post-listing to create *ΔCHS*. Column (2) displays positive and significant estimates for exchange- and OTC-listed firms. However, the interaction between *XCash*, *144A*, and *ΔCHS* is not distinguishable from zero. Overall, this specification confirms that part of the excess cash premium for exchange and OTC listings is explained by the change in ownership occurring around the cross-listing period.

[34] Note that we also define this variable by considering only one and two years before and one and two years after the listing. Our results are not affected by how we define the change in analyst coverage.

In column (3), we introduce simultaneously our two measures for monitoring intensity because they may serve as proxies for different aspects of investor scrutiny as witnessed by their low correlation. This additional estimation clearly reinforces our previous conclusions. For exchange listings, we observe that part of the excess cash premium is explained by the increased number of analysts following the firm. Again, for OTC listings, our estimates reveal that the excess cash premium is partly explained by both dimensions of investor monitoring. Interestingly, investors seem to associate 144A listings with greater constraints on management only if they are able to draw additional attention from the analyst and investor community. In columns (5) and (6), we perform a similar analysis for London listings, and in that case, we note that the premium investors place a premium on excess cash only if the listing comes along with an increased number of financial analysts following the firm. In all specifications the coefficients on *XCash*×*Exchange* remain positive and significant, suggesting that the stricter legal and disclosure environment provided by U.S. market unambiguously plays an important role in disciplining managers beyond the role played by more informal mechanisms. We also note that the coefficients on *XCash*×*OTC,* although lower, are also positive and significant. This could be because our proxies for monitoring intensity are not perfect or there are other mechanisms at work. As indicated in Bailey, Karolyi, and Salva (2006), many firms listing OTC voluntarily provide additional disclosures and implement governance improvements even if they are not required to do so. Another potential explanation for the unexplained premium for OTC firms could be the role of the market for corporate control in the United States.

The results in this section unequivocally suggest that the additional monitoring provided by analysts and large investors plays a substantial role in enhancing investors' confidence. In this respect, our analysis complements the evidence of Dittmar and Mahrt-Smith (2007). While these authors document that the value of excess cash of U.S. firms is positively related to firm-level governance proxies, we show that *changes* in monitoring intensity that characterize a U.S. cross-listing also help restrain the dissipation of cash and in turn preserve firm value. On a different level, our results indicate that stricter legal protection for investors and more intense monitoring together enhance investors' confidence in management' actions, since investors update their valuation of excess cash holdings around the cross-listing event.

4.7. Is there still an effect today?

In recent years, new laws and regulations aimed at enhancing corporate governance have been introduced in many countries. Since 1998, some 30 codes or principles have been established in OECD countries.[35] Corporate governance reforms have also been a priority in many emerging markets. De Nicolo, Laeven, and Ueda (2006) show that this effort has translated into a real improvement in governance quality in many developed and emerging markets, although with varying intensity. In particular, they show that, in 2003, emerging-market corporate governance still ranked behind that of developed economies.

The efforts by governments to strengthen shareholder rights together with the pressure on business to improve governance practices may have led to an increase in investors' valuation of excess cash through time for non-cross-listed firms. Simultaneously, the Sarbanes-Oxley Act (SOX) of 2002 reinforced U.S. legal rules and disclosure and governance standards. Hence, if non-U.S. initiatives are economically more relevant than U.S. ones, we may observe a convergence of corporate governance practices and a reduction or elimination of the relative efficiency of U.S. cross-listing for securing investors' money. Actually, there is some evidence that convergence, as measured by the Corporate Governance Quality Index developed by De Nicolo, Laeven, and Ueda (2006), may have taken place. Yet, in a recent paper, Aggarwal, Erel, Stulz, and Williamson (2007) find that, on average, foreign firms have poorer governance than matching U.S. firms. These findings suggest that cross-listed firms, which benefit from the overall U.S. standards and environment, should still enjoy a higher valuation of their liquid assets.

Given the recent changes in international governance practices, a natural question is whether investors still perceive a U.S. listing as an efficient device to reduce the risk that managers will misuse corporate cash reserves. To shed some light on this question, we examine how the premium investors place on the excess cash of cross-listed firms varies across different subperiods. The first period ranges from 1991 to 1999, which coincides with an upward market. Then we consider the period 2000-2001, which corresponds to a bear market. The third period follows the SOX enactment, that is, 2002 and 2003. The last period contains only 2003, which is the last year for which we can estimate our full model as specified in (1). Note that to estimate our model for 2003, we need data until 2005, because we are including two-year lead changes on earnings and investment variables as controls.

[35] The "Survey of Corporate Governance Developments in OECD Countries" summarizes the codes and principles adopted by OECD countries that imply changes in law and regulation and that are designed to enhance corporate governance. See http://www.oecd.org/dataoecd/58/27/21755678.pdf

However, in order to evaluate the recent period as thoroughly as we can, we also replace the two-year lead control variables by one-year leads. This enables us to include 2004 in our estimation window. Finally, for the most recent period, we split our sample into firms from developed and emerging markets, respectively.

Insert Table 8 about here

Table 8 reports the results. If we look at the evolution of the coefficients on *XCash×Exchange*, we see that the premium that investors place on the excess cash of cross-listed firms is positive and significant even in the most recent period. The only exception is the estimated coefficient for the period 2000-2001.[36] During those years, investors did not seem to perceive cross-listing as an effective mechanism for tying tie insiders' hands. Interestingly, this period corresponds to the bursting of the Internet bubble and the rise in corporate scandals, when investors may have lost some trust in U.S. governance. However, when we consider the post-SOX period, we note that the excess cash of cross-listed firms is worth more than that of their domestic peers. If we look at columns (6) and (7), we observe that for the most recent period, this effect comes mostly from firms in emerging markets, while the value of the excess cash premium for developed markets firms is no longer statistically significant. In unreported tables, we obtain a similar outcome when we use any of the country-level indexes reported in table 6 to split the sample.

Our temporal analysis highlights several important facts. First, we illustrate that during the period comprising the bursting of the Internet bubble and the subsequent corporate scandals, such as those at Enron and WorldCom, investors downgraded their beliefs about the effectiveness of cross-listing to limit insiders' actions. This is consistent with the view that the scandals, which involved fraud and accounting irregularities, weakened investors' trust in the integrity of U.S. capital markets. In response, the U.S. Congress passed the Sarbanes-Oxley (SOX) Act of 2002, which aimed to offer enhanced transparency, accountability, and investor protection. If we look at the recent period, we see that investors again associate cross-listing with reduced risk of resource misallocation and consequently put a premium on the cash of firms that subject themselves to the U.S. financial system.

[36] A similar result is shown in Wojcik, Clark, and Bauer (2005). Following a different experiment, they observe that in 2003 U.S. cross-listed firms enjoyed a governance advantage over non-cross-listed peers, but this effect was weaker in 2000.

This result is consistent with a recent study by Doidge, Karolyi, and Stulz (2008), who show that non-U.S. firms cross-listing on the New York Stock Exchange enjoy a valuation premium that is still present. Our contribution is to show that this valuation premium is partly explained by the efficacy of U.S. cross-listings in improving the efficient use of firms' liquid assets, especially for firms in emerging markets.

5. CONCLUSION

Recent research has shown that investors discount the value of corporate cash reserves when they are at high risk of being funneled into value destroying ventures. In this paper, we examine whether and how the stricter legal rules, the greater transparency, and the increased monitoring that accompany a U.S. cross-listing help mitigate this risk. Our analysis reveals that investors indeed perceive a U.S. listing as an efficient device to curb managers' misuse of cash reserves. In particular, we document that investors systematically place a valuation premium on the excess cash of foreign firms that cross-list on U.S. exchanges or over-the-counter compared with that of their domestic peers. Moreover, the excess cash premium turns out to be magnified for firms located in countries in which shareholder protection is weak. Also, despite many initiatives to improve governance practices worldwide, the valuation differential appears to be sustained in the long-run and is still present. Exploring more in more detail the origin of the reduction in misallocation risk, we find that two complementary forces are at work. On the one hand, investors perceive the strength of U.S. legal enforcement and disclosure requirements as effective mechanisms for tying managers' hands. On the other hand, the additional scrutiny by financial analysts and large investors that accompanies a U.S. listing also enhances investors' confidence that cash reserves will be not be squandered.

In a nutshell, our results highlight that the potential for value destruction embodied in large corporate cash holdings is significantly lessened when foreign firms benefit from U.S. institutions and the U.S. monitoring environment. As such, this paper provides at least two important insights. First, we confirm that the value contained in cash holdings is largely determined by the existence and efficacy of mechanisms putting bounds on managerial actions. In this spirit, our results suggest that firms can take effective actions to acquire such mechanisms and hence cut back a substantial source of value loss. We provide evidence that a U.S. cross-listing turns out to be a valid option. Second, our analyses underline that legal constraints and external monitoring pressure operate hand in hand in securing the adequate use of cash reserves and, in turn, safeguarding firm value.

Yet our work leaves some questions unanswered. In particular and despite our best efforts, we are not able to fully explain the premium that investors place on the excess cash of firms that list over-the-counter. Although we document that part of the valuation premium is due to increased external monitoring, we believe that the unexplained portion could be attributed to additional disclosure and corporate governance rules that firms may voluntary choose to implement even if not required to do so. Also, our effort has been directed at understanding the impact of U.S. regulations and monitoring on the value of excess cash, but we note that those elements could also affect firm value positively or negatively through other channels. However, assessing the overall net impact on firm value is beyond the scope of this paper. Finally, our analysis does not address whether it would be better for certain firms, those with no investment opportunities, to unload their cash balances via dividends, stock repurchases, or paying off debt. These are important questions that we leave for future research.

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Appendix: Computing excess cash holdings

This appendix describes the methodology for computing excess cash holdings. We follow and adapt the approach of Dittmar and Mahrt-Smith (2007) and Opler, Pinkowitz, Stulz, and Williamson (1999). Specifically, for each country, we first estimate regressions to determine the normal level of cash holdings.[37] This choice is justified by the results in Dittmar, Mahrt-Smith, and Servaes (2003), who show that the level of cash depends crucially on country factors. We then define excess cash as the difference between actual cash and the predicted normal cash.

The excess cash measure that we use throughout the paper comes from the following specification:

$$\ln(Cash_{i,t}) = \beta_1 \ln(TA_{i,t}) + \beta_2 CF_{i,t} + \beta_3 NWC_{i,t} + \beta_4 \overline{MV_{i,t}} + \beta_5 Capex_{i,t} + \beta_6 Leverage_{i,t} + \beta_7 RD_{i,t} + \beta_8 DIV_{i,t} + \alpha_i + \phi + \eta_t + \upsilon_{i,t} \quad (2)$$

where *Cash*[38] is cash and marketable securities, *CF* is operating income minus interest and taxes. *NWC* is current assets minus current liabilities minus cash, and *MV* is the market value of the firm, computed as the sum of the market value of equity and the book value of short-term and long-term debt. This variable is further made instrumental using past sales growth; see below. *Capex* refers to capital expenditures. *Leverage* is the sum of short- and long-term debt. *RD* refers to research and development expenses. When *RD* is missing, we set its value to zero. *DIV* represents common dividend paid. All variables are scaled by total assets (*TA*). We also include firm (α_i), industry (ϕ). and time (η_t) fixed effects.

Several aspects of model (2) deserve additional comments. First, as noted in Dittmar and Mahrt-Smith (2007), the proxy for investment opportunities in (2), *MV*, presents a potential problem. Indeed, in the paper, we conjecture and provide evidence that excess cash affects firm value. Accordingly, it is problematic to also use this variable as a proxy for investment opportunities in regressions predicting cash levels. To address this concern, we follow Dittmar and Mahrt-Smith (2007) and employ an instrumental variable to control for investment opportunities. Specifically, we use two years lagged sales growth as an instrument

[37] Note that we also estimate one regression for all countries including country-fixed effects. This way of computing excess cash delivers similar results concerning the effects of cross-listing on the value of excess cash.
[38] For ease of notation, we drop the subscripts that refer to the firm *i* and respectively year *t*.

for *MV*. As it is difficult to argue that current cash levels affect past sales growth, this measure is exogenous to cash decisions. As we show below, this instrument consistently identifies model (2) parameters.

Second, we include firm fixed effects in model (2), since some firms may genuinely hold larger cash balances than required for economic reasons.[39] Following the arguments of Dittmar and Mahrt-Smith (2007), we do not deduct the estimated specific firm effects when computing excess cash. Indeed, since firm fixed effects do not capture traditional determinants of cash holdings such as investment, hedging, and operational needs, they should be counted as excess cash.[40]

In Panel A of table A.1, we present the estimation of model (2). First, columns (1) and (2) report pooled OLS coefficient estimates. In column (2), we replace *MV* by past sales growth to proxy for investment opportunities. In column (3)–(7), we apply an instrumental-variables approach to estimate model (2). Our estimates of excess cash throughout the paper are computed from the coefficients in column (3). These coefficients correspond to the mean coefficients of the country- specific regressions. The coefficient estimates are generally in line with previous related literature. We also report the results from the firststage regression of the instrumental variable estimation in the last column. The strong positive association between past sales growth and market value supports of our instrument choice. We note that the results of the effect of cross-listing on the value of excess cash remain qualitatively the same if instead we use excess cash estimates based on coefficients in column (1) and (2).

For robustness, we also estimate different alternative specifications of the normal cash regression where we include governance proxies as additional controls. Indeed, previous literature indicates a link between governance proxies and cash levels. In this spirit, we first follow the insights of Dittmar, Mahrt-Smith, and Servaes (2003), and include country-level governance variables. Specifically, we include the revised anti-director-rights index (column 4) as well as a dummy for the common-law legal origin (column 5). Since we cannot run country-by-country regressions when using country-level variables, we run a pooled estimation instead. Alternatively, we consider our two firm-level governance (monitoring) variables as predictors of cash level. In column (6), we include closely held shares and in column (7) we add analyst coverage. Our objective is to find a measure that represents the

[39] An F-test on the joint significance of firm-fixed effect confirms the need to account for firm-invariant effects (p-value equals to 0.001).
[40] See Dittmar and Mahrt-Smith (2007) for an illustrative example.

amount of cash that is at risk of being squandered by managers. Although governance quality affects firms' cash level, this channel is not justified for genuinely operational reasons. Accordingly, to have an accurate measure, we do not take into account the governance-variables estimates when computing the excess cash residuals. Reassuringly, those alternative specifications lead to the same conclusions on the interaction between cross-listing and cash and their effect on firm value presented in the body of the paper. Consistent with Dittmar and Mahrt-Smith (2007), the robustness of the results to different excess cash measures may be partly explained by the high correlation of the estimated excess cash across the different specifications and estimation techniques for the normal cash regression.

Panel B of table A.1. displays the correlation coefficients between the seven specifications reported earlier. The magnitude of the correlation estimates ranges between 0.78 and 0.99. Finally, as we show in table 2 of the paper, using total cash and changes in cash instead of the excess-cash measure defined in this appendix also confirms the robustness of our value results.

Table A.1. Predicting the normal level of cash

This table reports the regression results for the level of cash used to compute excess cash and the correlation between different measures of excess cash. In Panel A, the dependent variable is the natural logarithm of the ratio of cash divided by total assets. The regressors include: firm size (*Size*), EBIT to total assets (*CF*), net working capital to total assets (*NWC*), R&D to total assets (*RD*), market value to total assets (*MV*), capital expenditures to total assets (*Capex*), total debt to total assets (*Leverage*), total dividend paid (*Dividend*) and two-years lagged sales growth (*Sales Growth*). Column (1) and (2) report pooled OLS coefficient estimates. Column (2) replaces *MV* by past sales growth to proxy for investment opportunities. Columns (3)-(7) are estimated using an instrumental variables (IV) approach with past sales growth as an instrument for *MV*. The results of the first stage of the IV model (*MV* as dependent variable) are reported in the last column (8). The specifications in columns (4)-(7) are identical to (3) but include the following governance variables: *Revised Antidirector Rights* is an index measuring country-level investors' protection [from Djankov et al. (2006)]. *Common Law* is a dummy that equals one for Common law countries and zero otherwise [from la Porta et al. (1996)]. *CHS* represents the percentage ownership by large shareholders and insiders and *Coverage* is the number of analyst following the firm. All estimations include firm, industry and time fixed effects. Moreover specifications in (4) and (5) also include country fixed effects. We report heteroskedasticity and serial correlation robust t-statistics in brackets. ** and * indicate statistical significance at the 1% and 5% levels, respectively.

Panel A : Regression results

	Pooled OLS		**Instrumental variables**					
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**1st stage *MV*** **(8)**
Size	0.068**	0.063**	0.072**	0.099**	0.092**	0.102**	0.049**	-0.019
	[25.25]	[23.97]	[26.43]	[54.03]	[48.22]	[50.51]	[11.01]	[1.78]
CF	2.335**	2.351**	2.258**	2.372**	2.335**	2.411**	2.255**	2.266**
	[37.62]	[36.42]	[30.13]	[39.82]	[37.82]	[31.44]	[31.82]	[10.52]
NWC	-0.730**	-0.252**	-0.277**	-0.613**	-0.730**	-0.555**	-0.027*	-0.15*
	[10.72]	[4.48]	[4.14]	[8.99]	[10.70]	[5.87]	[2.32]	[2.03]
RD	0.038**	0.061**	0.023*	0.028**	0.023*	0.027	0.025	9.551**
	[3.79]	[5.98]	[2.29]	[2.56]	[2.09]	[1.65]	[1.61]	[3.06]
MV	0.048**		-0.048**	-0.050**	-0.058*	-0.101**	-0.066**	
	[8.53]		[3.10]	[3.16]	[2.50]	[3.73]	[2.80]	
Sales Growth		0.089**						0.277**
		[7.23]						[9.16]
Capex	-0.118**	-0.811**	-0.107**	-0.126**	-0.145**	-0.116**	-0.098**	
	[4.41]	[3.02]	[4.03]	[4.55]	[4.83]	[4.20]	[3.82]	
Dividend	-0.114**	-0.126**	-0.125**	-0.059**	-0.057**	-0.068**	-0.206**	
	[10.39]	[11.62]	[11.04]	[5.27]	[5.08]	[5.01]	[15.01]	
Leverage	-0.874**	-0.841**	-0.826**	-0.927**	-0.937**	-0.920**	-0.851**	
	[30.94]	[30.07]	[29.59]	[31.49]	[31.75]	[28.11]	[24.80]	
Revised Antidirector Rights				-0.292**				
				[9.08]				
Common Law					-0.210**			
					[20.64]			
CHS						-0.001**		
						[4.00]		
Coverage							0.007**	
							[7.86]	
By country estimation	yes	yes	yes	no	no	yes	yes	yes
Observations	59,072	60,406	60,406	58,462	57,983	44,484	40,980	60,406
Adjusted R^2	0.34	0.33	0.34	0.25	0.26	0.32	0.32	0.17
F-test: α_i=0 (*p*-value)	0	0	0	0	0	0	0	

Panel B : Correlations between the seven excess cash measures

Specifications	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)	1						
(2)	0.8823	1					
(3)	0.8494	0.9579	1				
(4)	0.9955	0.8922	0.8441	1			
(5)	0.8128	0.8465	0.8756	0.8007	1		
(6)	0.8335	0.8547	0.9231	0.7886	0.9997	1	
(7)	0.8503	0.8999	0.8641	0.8528	0.9476	0.9135	1

Table 1. Descriptive statistics.

Panel A describes the number of non-U.S. firms cross-listing in the U.S. in our sample classified by the type of listing, the number of firm-years available for those cross-listing firms, and similar information for a benchmark sample of firms that do not list in the U.S. * denotes a country designated as an emerging market by Standard and Poor's Emerging Market Database. Panel B provides information on the composition of our sample classified by country-level measures of investor protection, by the degree of market development, and by the change in capital-raising activity around the cross-listing event. The country-level measures of investor protection are the anti-director-rights index and the accounting index from La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998), the anti-self-dealing index, and the revised anti-director-rights index from Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2006). Panel C presents mean and median value for *Excess Cash*, *Cash* (cash plus marketable securities divided by total assets), *Market Value* (sum of the market value of equity, the book value of short- and long-term debt, divided by total assets), *Coverage* (number of analysts following the firm), *Closely held shares* (% of shares held by insiders including blockholders) and *Capital Raised* for the periods before and after a U.S. listing as well as for the benchmark sample. To test the differences between the groups before-after, before-benchmark, and after-benchmark, we compute two-sample Wilcoxon tests (W-test). For each group (before and after), below each grouping criterion, we compute Kruskal-Wallis tests (K-W test) to test whether there are significant differences across the grouping criteria. ** and * indicate statistical significance at the 1% and 5% test levels, respectively.

Panel A. By Country

	Number of Firms				Number of Firm-years			
Country	**Exchange**	**OTC**	**144A**	**Benchmark**	**Exchange**	**OTC**	**144A**	**Benchmark**
Argentina*	5	2	5	32	47	15	30	97
Australia	12	31	3	465	125	212	31	1,455
Austria	1	10	1	48	4	86	3	317
Belgium	1	2	-	76	13	26	-	524
Brazil*	15	21	2	127	64	95	7	379
Canada	64	-	-	475	538	-	-	2,132
Chile*	10	2	1	100	79	17	5	532
China*	7	5	4	406	29	25	26	931
Colombia*	-	-	2	17	-	-	5	83
Denmark	4	-	-	92	41	-	-	763
Finland	2	2	4	97	12	25	34	672
France	19	14	2	487	284	201	22	3,050
Germany	16	13	4	514	103	151	33	2,868
Greece*	1	-	3	75	4	-	12	175
Hong Kong	8	71	2	441	37	502	11	1,514
Hungary*	1	2	4	17	5	13	17	65
India*	3	-	46	301	15	-	222	1,157
Ireland	6	5	-	35	48	36	-	265
Israel	9	1	-	55	43	10	-	173
Italy	8	-	6	158	74	-	43	971
Japan	15	19	-	2,798	137	220	-	11,532
Korea*	2	-	4	569	4	-	18	.1,998
Luxemburg	1	-	1	16	1	-	2	82
Malaysia*	-	9	-	551	-	86	-	2,557
Mexico*	17	12	5	58	158	46	43	253
Netherlands	14	4	1	111	152	57	1	870
New Zealand	3	-	-	58	30	-	-	265
Norway	4	3	2	92	34	29	13	537
Pakistan*	-	-	1	90	-	-	2	515
Peru*	1	3	1	47	6	10	10	154
Philippines*	1	2	5	94	16	24	35	362
Poland*	-	1	5	44	-	4	15	157
Portugal*	2	1	3	36	18	9	21	188
Russia*	4	5	2	2	17	10	5	2
Singapore	3	17	-	342	9	105	-	1,411
South Africa*	6	20	4	172	64	137	28	720
Spain	3	2	1	82	70	13	1	607
Sweden	9	4	1	197	95	34	8	990
Switzerland	7	6	1	149	67	59	14	1,125
Taiwan*	5	-	42	804	44	-	246	2,057
Thailand*	-	11	2	257	-	82	19	1,462
Turkey*	-	1	6	84	-	3	13	176
UK	47	48	-	879	582	624	-	7,412
Venezuela*	1	5	1	4	2	33	3	14
Total	**337**	**354**	**177**	**11,554**	**3,071**	**2,999**	**998**	**53,569**

Panel B. By Investor Protection, Economic Development, and Capital-Raising Activity

	Number of Firms				Number of Firm-years			
	Exchange	**OTC**	**144A**	**Benchmark**	**Exchange**	**OTC**	**144A**	**Benchmark**
By Anti-Director-Rights Index								
High Protection	203	246	86	7,688	1,883	2,072	443	35,063
Low Protection	134	108	91	3,866	1,188	927	555	18,506
Total	337	354	177	11,554	3,071	2,999	998	53,569
By Accounting Index								
High Protection	224	266	83	8,907	2,174	2,346	509	40,564
Low Protection	113	88	94	2,647	897	653	489	13,005
Total	337	354	177	11,554	3,071	2,999	998	53,569
By Revised Anti-Director-Rights Index								
High Protection	240	288	97	9,091	2,087	2,325	490	41,384
Low Protection	97	66	80	2,463	984	674	508	12,185
Total	337	354	177	11,554	3,071	2,999	998	53,569
By Anti-Self-Dealing Index								
High Protection	207	251	127	8,627	1,834	2,121	666	37,608
Low Protection	130	103	50	2,927	1,237	878	332	15,961
Total	337	354	177	11,554	3,071	2,999	998	53,569
By Economic Development								
Developed	249	252	32	7,648	2,474	2,389	237	39,550
Emerging	88	102	145	3,906	597	610	761	14,019
Total	337	354	177	11,554	3,071	2,999	998	53,569
By Capital-Raising Activity								
Increase	154	80	18	-	1,599	885	555	-
No increase	183	274	159	-	1,472	2,114	443	-
Total	337	354	177	-	3,071	2,999	998	-

Panel C. Summary Statistics

	Before (1)			After (2)			Benchmark (3)			(1)-(2)	(1)-(3)	(2)-(3)
Variables	**Obs**	**Mean**	**Median**	**Obs**	**Mean**	**Median**	**Obs**	**Mean**	**Median**	**W-test**	**W-test**	**W-test**
Excess cash												
All	1,249	0.027	0.008	5,819	0.029	0.085	53,569	-0.001	0.006	-2.06*	-1.43	-8.62**
Exchange	448	0.033	0.011	2,649	0.034	0.015				-0.28	-2.92**	-7.50**
OTC	693	0.024	0.007	2,285	0.024	0.015				-2.28*	0.54	-4.74**
144A	108	0.020	0.006	885	0.024	0.010				-0.35	-0.34	-2.12*
(K-W test)		5.20			6.59*							
Cash												
All	1,249	0.118	0.085	5,819	0.112	0.079	53,569	0.121	0.084	1.71	-0.71	2.13*
Exchange	448	0.115	0.076	2,649	0.116	0.097				-0.20	0.67	1.26
OTC	693	0.123	0.095	2,285	0.113	0.084				1.76	-2.22 *	-0.86
144A	108	0.096	0.063	885	0.098	0.068				-0.08	1.87	5.04**
(K-W test)		8.54*			27.78**							
Market Value												
All	1,249	1.181	0.881	5,819	0.990	0.705	53,569	0.766	0.503	7.78**	-20.00**	-25.06**
Exchange	448	1.216	0.890	2,649	1.179	0.834				1.27	-12.90**	-28.56**
OTC	693	1.175	0.895	2,285	0.820	0.594				9.81**	-15.17**	-8.46**
144A	108	1.076	0.735	885	0.857	0.567				2.41*	-3.66**	-2.77**
(K-W test)		4.09			259.04**							
Coverage												
All	1,142	15.5	14.0	5,219	17.6	17.0	35,172	6.8	4.0	-7.95**	-33.54**	-79.22**
Exchange	389	16.9	16.0	2,383	19.8	19.0				-6.31**	-21.26**	-63.53**
OTC	654	15.3	14.0	2,026	16.6	16.0				-3.61**	-25.16**	-46.48**
144A	99	10.7	10.0	810	13.4	13.0				-3.14**	-7.80**	-27.55**
(K-W test)		23.43**			263.98**							
Closely Held Shares												
All	965	34.01	33.70	4,551	33.18	31.86	40,055	46.27	46.60	3.72**	12.05**	34.14**
Exchange	311	29.96	30.03	2,055	27.99	24.58				4.23**	6.88**	32.06**
OTC	617	35.31	34.64	2,004	35.91	34.26				-0.20**	11.00**	18.58**
144A	37	46.23	36.62	492	43.76	43.57				3.33**	-2.74**	4.13**
(K-W test)		19.90**			159.99**							
Capital Raised												
All	183	130.9	106.2	1,606	226.0	155.4				-4.38**		
Exchange	55	152.9	130.0	949	255.4	189.0				-2.42**		
OTC	112	123.4	95.4	512	190.4	122.6				-2.98**		
144A	16	107.7	103.1	145	158.7	105.9				0.71		
(K-W test)		13.66**			55.85**							

Table 2. Investors' valuation of excess cash holdings: cross-listed versus non-cross-listed firms

This table reports cross-sectional pooled OLS regressions and coefficient estimates for the market value of excess cash. The dependent variable is the ratio of market value (sum of the market value of equity and the book value of short- and long-term debt) divided by total assets. The independent variables include excess cash holdings *XCash*, defined as the residual from regression (2) in the appendix. To identify firms' cross-listing status, we use different binary variables: *Cross-list* equals one for firms cross-listed in the U.S. regardless of the type of listing and zero otherwise. *Exchange* equals one for firms cross-listed on a U.S. exchange and zero otherwise. *OTC* equals one for over-the-counter cross-listed firms and zero otherwise. *144A* equals one for firms cross-listed through private placements and zero otherwise. To assess whether investors' valuation of excess cash varies with the different cross-listing types, we interact *XCash* with the cross-listing dummies. To control for investment opportunities we include *Sales Growth* (the percentage change in sales from *t-2* to period *t*) and *Global Industry q* (the median industry Tobin's q, defined as the median market-to-book ratio of all firms that share the same SIC code). All specifications also include a set of (unreported) firm-specific variables that serve as proxies for firm profitability and financial and investment policy as defined in the text. All estimations include year and country fixed effects. We report heteroskedasticity and serial correlation robust t-statistics in brackets. ** and * indicate statistical significance at the 1% and 5% levels, respectively.

Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Cross-list	0.066**				
	[3.61]				
Exchange		0.183**	0.182**		
		[6.72]	[6.69]		
OTC		-0,025		-0,036	
		[0.89]		[1.26]	
144A		0,034			0,024
		[0.79]			[0.55]
XCash	0.589**	0.589**	0.613**	0.636**	0.657**
	[12.18]	[12.18]	[12.94]	[13.45]	[14.01]
XCash × *Cross-list*	0.910**				
	[5.57]				
XCash × *Exchange*		1.023**	1.001**		
		[4.51]	[4.41]		
XCash × *OTC*		0.840**		0.792**	
		[3.16]		[2.97]	
XCash × *144A*		0,177			0,107
		[0.42]			[0.25]
Sales Growth	0.171**	0.173**	0.171**	0.166**	0.166**
	[11.44]	[11.52]	[11.42]	[11.06]	[11.01]
Global Industry q	1.337**	1.333**	1.329**	1.334**	1.330**
	[19.13]	[19.09]	[19.02]	[19.04]	[18.99]
Observations	32,155	32,155	32,155	32,155	32,155
Adjusted R^2	0.75	0.28	0.28	0.27	0.27

Table 3: Investors' valuation of excess cash holdings: cross-listed versus non-cross-listed firms (robustness).

This table reports cross-sectional regressions and coefficient estimates for the market value of excess cash. The dependent variable is the ratio of market value (sum of the market value of equity and the book value of short- and long-term debt) divided by total assets. The independent variables include excess cash holdings *XCash* defined as the residual from regression (2) in the appendix. To identify firms' cross-listing status, we use different binary variables: *Exchange* equals one for firms cross-listed on a U.S. exchange and zero otherwise. *OTC* equals one for over-the-counter cross-listed firms and zero otherwise. *144A* equals one for firms cross-listed through private placements and zero otherwise. To assess whether investors' valuation of excess cash varies with the different cross-listing types, we interact *XCash* with the cross-listing dummies. To control for investment opportunities we include *Sales Growth* (the percentage change in sales from *t-2* to period *t*) and *Global Industry q* (the median industry Tobin's q, defined as the median market-to-book ratio of all firms that share the same SIC code). All specifications also include a set of (unreported) firm-specific variables that serve as proxies for firm profitability and financial and investment policy as defined in the text. In columns (1) and (2), we contrast our results with those oin the existing literature by replacing *XCash* by the level and changes in normal cash. Specifically, *Cash* is defined as cash plus marketable securities divided by total assets while *ΔCash* refers to the yearly change in *Cash*. In column (3), we exclude observations from the U.K. and Japan, which represent an important part of our sample and could be driving our results. In column (4), we include all observations and do not restrict ourselves to firm-years having positive *XCash*. More precisely, when a firm-year has a level of cash that is lower than the optimal level of cash, we set *XCash* equal to zero. In column (5), we interact all slope parameters on the control variables with the listing dummy *Cross-list* to control for the potential effect of changes in discount rates. In column (6), we use the Fama and MacBeth (1973) methodology to estimate the value of excess cash. In columns (7) and (8), we use the Heckman specification to further assess the potential effect of self-selection. In column (7) *Mills* refers to the inverse Mills ratio computed from the first step (unreported) probit estimation where the dependent variable equals one if a firm is cross-listed (irrespective of the cross-listing type) and zero otherwise. In column (8), $Mills_{Exchange}$, $Mills_{OTC}$ and $Mills_{A144}$ refer to the inverse Mills ratios independently computed from (unreported) probit estimations where the dependent variables are respectively *Exchange*, *OTC*, and *A144*. All estimations include year and country fixed effects. We report heteroskedasticity and serial correlation robust t-statistics in brackets. ** and * indicate statistical significance at the 1% and 5% levels, respectively.

Table 3: Investors' valuation of excess cash holdings: cross-listed versus non-cross-listed firms (robustness).
[continued]

	Pooled OLS					FM	Heckman	
Variables	***Cash*** **(1)**	***ΔCash*** **(2)**	**Exclude UK/JPN (3)**	**Include *XCash<=0* (4)**	**Changing slope parameters (5)**	**(6)**	**(7)**	**(8)**
Exchange	0.063**	0.191**	0.178**	0.155**	0.176**	0.09	1.914**	4.692**
	[2.94]	[11.88]	[5.32]	[8.30]	[3.40]	[1.38]	[36.27]	[51.00]
OTC	-0,001	0,005	-0.123**	-0.041*	-0.149*	-0.042	1.844**	-0.147
	[0.04]	[0.29]	[3.74]	[2.25]	[2.61]	[1.83]	[33.09]	[1.23]
144A	0,006	0,013	0.018	0.048	-0.086	0.008	1.723**	0.119
	[0.20]	[0.52]	[0.40]	[1.75]	[1.62]	[0.22]	[28.12]	[1.15]
XCash			0.453**	0.611**	0.599**	0.616**	0.772**	0.768**
			[7.64]	[16.29]	[12.24]	[7.90]	[16.28]	[16.52]
XCash × Exchange			1.312**	0.953**	1.115**	1.13**	1.374**	1.657**
			[4.84]	[5.23]	[4.79]	[4.56]	[8.85]	[12.98]
XCash × OTC			1.120**	0.630**	0.599*	0.75**	1.087**	0.919**
			[3.76]	[2.97]	[2.21]	[4.23]	[6.47]	[3.57]
XCash × 144A			0.297	-0.158	0.058	0.307	0.562	-0.371
			[0.71]	[0.46]	[0.54]	[1.12]	[1.37]	[0.91]
Cash	0.842**							
	[35.07]							
Cash × Exchange	1.202**							
	[10.26]							
Cash × OTC	0.632**							
	[3.02]							
Cash × 144A	0,052							
	[0.24]							
ΔCash		0.644**						
		[21.57]						
ΔCash × Exchange		0.868**						
		[5.68]						
ΔCash × OTC		0.499**						
		[2.86]						
ΔCash × 144A		0,353						
		[1.20]						
Mills							-0.999**	
							[9.32]	
$Mills_{Exchange}$								-1.662**
								[5.50]
$Mills_{OTC}$								-0.568
								[7.12]
$Mills_{144A}$								0.422**
								[6.67]
Sales Growth	0.149**	0.138**	0.106**	0.142**	0.173**	0.100*	0.185**	0.202**
	[13.95]	[12.66]	[5.92]	[13.15]	[11.56]	[2.57]	[12.66]	[14.07]
Global Industry q	1.066**	1.137	1.062**	1.268**	1.321**	0.780**	1.291**	1.197**
	[21.37]	[22.49]	[12.10]	[24.36]	[18.96]	[3.25]	[18.93]	[17.86]
Observations	65,376	65,067	21,413	58,934	32,155	32,155	32,155	32,155
Adjusted R^2	0.25	0.23	0.25	0.26	0.28	0.32	0.31	0.34

Table 4: Investors' valuation of excess cash holdings: the potential effect of growth options

This table reports cross-sectional regressions and coefficient estimates for the value of excess cash. The dependent variable is the ratio of market value (sum of the market value of equity and the book value of short- and long-term debt) divided by total assets. The independent variables include excess cash holdings *XCash* defined as the residual from regression (2) in the appendix. To identify firms' cross-listing status, we use different binary variables: *Exchange* equals one for firms cross-listing on a U.S. exchange and zero otherwise. *OTC* equals one for over-the-counter cross-listed firms and zero otherwise. *144A* equals one for firms that cross-list through private placements and zero otherwise. To assess whether investors' valuation of excess cash varies along with the different cross-listing types, we interact *XCash* with the cross-listing dummies. To control for investment opportunities we include *Sales Growth* (the percentage change in sales from *t-2* to period *t*) and *Global Industry q* (the median industry Tobin's q, defined as the median market-to-book ratio of all firms that share the same SIC code). In column (1) and (2), we separate cross-listed firms according to their capital raising activity. Column (1) includes firms that increase their capital-raising activity from the three years prior the cross-listing year to three years following the cross-listing year and column (2) includes firms that do not increase their capital-raising activity around the cross-listing event. For each group we also report the *p*-value of a Wald test for the difference between (1) and (2). The standard errors for the differences between (1) and (2) are computed with a SUR system that estimates both groups jointly. In column (3), we include in the sample only cross-listed and U.S firms. Thus we drop our benchmark sample of non-cross-listing foreign firms and include data for U.S. firms. The comparison is between U.S. firms and various types of cross-listings. The coefficient on *XCash* refers to the estimate of the market value of excess cash for U.S. firms. Similarly, *XCash* × *Exchange* refers to the incremental value of excess cash for exchange cross-listed firms in comparison with U.S. firms. A similar interpretation applies to the rest of the interactions. All specifications also include a set of (unreported) firm-specific variables that serve as proxies for firm profitability and financial and investment policy as defined in the text. All estimations only contain observations for which *XCash* is positive and include year and country fixed effects. We report heteroskedasticity and serial correlation robust t-statistics in brackets. ** and * indicate statistical significance at the 1% and 5% levels, respectively.

	Changes in capital-raising activity			**Cross-listed versus U.S. firms**
Variables	**Yes (1)**	**No (2)**	**Wald test (1)-(2)**	**(3)**
Exchange	0.112*	0.197**	0.230	-0.113*
	[1.98]	[5.34]		[2.16]
OTC	-0.045	-0.043	0.974	-0.366**
	[0.66]	[1.30]		[6.75]
144A	-0.055	0.053	0.176	-0.357**
	[0.71]	[0.94]		[4.38]
XCash	0.665**	0.603**	0.124	2.340**
	[17.47]	[12.48]		[26.09]
XCash × *Exchange*	1.252**	0.544*	0.046*	-0.201
	[3.82]	[2.01]		[0.56]
XCash × *OTC*	0.902**	0.403	0.257	-0.925*
	[3.00]	[1.71]		[2.02]
XCash × *144A*	0.001	0.101	0.904	-1.637*
	[0.00]	[0.20]		[2.28]
Sales Growth	0.193**	0.176**	0.011*	0.369**
	[12.23]	[11.68]		[11.50]
Global Industry q	1.394**	1.309**	0.046*	0.983**
	[18.72]	[18.45]		[6.73]
Observations	29,879	30,684		18,002
Adjusted R^2	0.27	0.27		0.31

Table 5: Investors' valuation of excess cash holdings: pre- versus post-cross-listing

This table reports cross-sectional regressions and coefficient estimates for the market value of excess cash in event time. The dependent variable is the ratio of market value (sum of the market value of equity and the book value of short- and long-term debt) divided by total assets. The independent variables include excess cash holdings *XCash* defined as the residual from regression (2) in the appendix. To identify firms' cross-listing status, we use different binary variables: *Exchange* equals one for firms cross-listing on a U.S. exchange and zero otherwise. *OTC* equals one for over-the-counter cross-listed firms and zero otherwise. *144A* equals one for firms that cross-list through private placements and zero otherwise. To assess whether investors' valuation of excess cash varies along with the different cross-listing types, we interact *XCash* with the cross-listing dummies. To control for investment opportunities we include *Sales Growth* (the percentage change in sales from *t-2* to period *t*) and *Global Industry q* (the median industry Tobin's q, defined as the median market-to-book ratio of all firms that share the same SIC code). To assess whether investors change their valuation of excess cash around the cross-listing event, we further interact *XCash* with the cross-listing type as well as with "event time" dummies. Specifically *Before* equals one before firms cross-list in the U.S. and zero otherwise while *After* equals one once firms have cross-listed in the U.S. and zero otherwise. In column (2) and (3), we further split *After* in two additional event-time dummies. Specifically, *After1* in column (2) (in column (3)) equals one during the three (two) years following the cross-listing year and zero otherwise while *After2* equals one for the period after and zero otherwise. All specifications also include a set of (unreported) firm-specific variables that serve as proxies for firm profitability and financial and investment policy as defined in the text. F-test # 1 tests the hypothesis that the coefficient on *XCash* × *Exchange* × *Before* is equal to the coefficient on *XCash* × *Exchange* × *After2 (*×*After in column (1))*. F-test # 2 tests the hypothesis that the coefficient on *XCash* × *OTC* × *Before* is equal to the coefficient on *XCash* × *OTC* × *After2 (*×*After in column (1))*. F-test # 3 tests the hypothesis that the coefficient on *XCash* × *A144* × *Before* is equal to the coefficient on *XCash* × *A144* × *After2 (*×*After in column (1))*. All estimations only contain observations for which *XCash* is positive and include year and country fixed effects. We report heteroskedasticity and serial correlation robust t-statistics in brackets. ** and * indicate statistical significance at the 1% and 5% levels, respectively.

		Persistence of the effect	
	Before* vs *After	***Before* vs *After2***	
Variables	**(1)**	**(2)**	**(3)**
Before	0.116**	0.123**	0.123**
	[2.95]	[4.29]	[4.29]
Exchange ×*After*	0.187**	0.176**	0.175**
	[6.89]	[6.04]	[5.99]
OTC × *After*	-0.023	-0.033	-0.035
	[0.83]	[1.14]	[1.20]
144A × *After*	0.035	0.023	0.018
	[0.84]	[0.53]	[0.41]
XCash	0.584**	0.583**	0.583**
	[12.00]	[12.06]	[12.06]
XCash × *Before*	0.177	0.197	0.194
	[0.53]	[0.64]	[0.63]
XCash × *Exchange* × *After*	1.031**		
	[4.55]		
XCash × *OTC* × *After*	0.849**		
	[3.19]		
XCash × *144A* × *After*	0.181		
	[0.43]		
XCash × *Exchange* × *After1*		1.105**	1.016**
		[3.75]	[3.09]
XCash × *Exchange* × *After2*		0.965**	1.030**
		[3.60]	[4.04]
XCash × *OTC* × *After1*		1.366**	0.909**
		[4.23]	[2.69]
XCash × *OTC* × *After2*		0.537*	0.632*
		[1.98]	[2.11]
XCash × *144A* × *After1*		0.785	0.208
		[1.50]	[1.88]
XCash × *144A* × *After2*		-0.294	-0.149
		[0.56]	[0.32]
Sales Growth	0.174**	0.174**	0.174**
	[11.63]	[11.63]	[11.63]
Global Industry q	1.329**	1.326**	1.326**
	[19.03]	[18.99]	[18.99]
Observations	32,155	32,155	32,155
Adjusted R^2	0.27	0.28	0.28
F-test # 1 (*p*-value)	0.007**	0.038*	0.022**
F-test # 2 (*p*-value)	0.034**	0.073	0.038**
F-test # 3 (*p*-value)	0.215	0.129	0.156

Table 6: Investors' valuation of excess cash: By home-country characteristics

This table reports cross-sectional regressions and coefficient estimates for the market value of excess cash. The dependent variable is the ratio of market value (sum of the market value of equity and the book value of short- and long-term debt) divided by total assets. The independent variables include excess cash holdings *XCash* defined as the residual from regression (2) in the appendix. To identify firms' cross-listing status, we use different binary variables: *Exchange* equals one for firms cross-listed on a U.S. exchange and zero otherwise. *OTC* equals one for over-the-counter cross-listed firms and zero otherwise. *144A* equals one for firms cross-listed through private placements and zero otherwise. To assess whether investors' valuation of excess cash varies with the different cross-listing types, we interact *XCash* with the cross-listing dummies. To control for investment opportunities we include *Sales Growth* (the percentage change in sales from *t-2* to period *t*) and *Global Industry q* (the median industry Tobin's q, defined as the median market-to-book ratio of all firms that share the same SIC code). All specifications also include a set of (unreported) firm-specific variables that serve as proxies for firm profitability, financial and investment policy as defined in the text. Countries with a low level of investor protection (Low) are countries with an index of investor protection (Anti-director rights and Accounting quality index [from la Porta et al. (1998)], Anti-self-dealing and revised Anti-director rights index [from Djankov et al. (2006)]) below the median and those with high levels (High) have indexes above the median. We use the Standard and Poor's Emerging Market Database to classify countries in emerging (Low) or developed (High). All estimations only contain observations for which *XCash* is positive and include year and country fixed effects. Below we also report the p-values of a two-sample Wald test. Specifically, Wald test #1 tests whether *XCash + XCash × Exchange* is significantly different between the Low and High groups. Similarly, Wald test #2 and Wald test #3test whether *XCash + XCash × OTC* and *XCash + XCash × 144A* , respectively, are significantly different between the Low and High groups. The standard errors for the two sample tests are computed with a SUR system that estimates both groups jointly. We report heteroskedasticity and serial correlation robust t-statistics in brackets. ** and * indicate statistical significance at the 1% and 5% levels, respectively.

	Antidirector Rights		**Anti-Self-dealing**		**Revised Antidirector Rights**		**Accounting**		**Economic Development**	
Variables	**Low (1)**	**High (2)**	**Low (3)**	**High (4)**	**Low (5)**	**High (6)**	**Low (7)**	**High (8)**	**Low (9)**	**High (10)**
Exchange	0.042	0.208**	0.01	0.230**	-0.063	0.207**	0.095	0.173**	0.143*	0.160**
	[0.92]	[5.69]	[0.20]	[6.34]	[1.11]	[6.17]	[1.87]	[5.02]	[2.30]	[4.95]
OTC	-0.205**	0.022	-0.209**	0.02	-0.330**	0.039	-0.106	-0.037	-0.016	-0.051
	[4.10]	[0.62]	[3.90]	[0.58]	[5.17]	[1.21]	[1.90]	[1.08]	[0.29]	[1.51]
144A	0.024	-0.05	-0.037	0	-0.078	-0.022	0.035	0.001	-0.016	0.07
	[0.41]	[0.74]	[0.50]	[0.00]	[1.24]	[0.35]	[0.57]	[0.02]	[0.31]	[0.89]
XCash	0.503**	0.700**	0.435**	0.733**	0.579**	0.722**	0.359**	0.697**	0.257**	0.723**
	[6.78]	[11.13]	[5.43]	[12.21]	[6.22]	[11.02]	[4.18]	[12.06]	[2.85]	[12.53]
XCash × Exchange	1.022**	0.897**	1.453**	0.595*	1.599**	0.884**	1.084**	0.875*	1.190**	0.755**
	[2.87]	[3.08]	[3.92]	[2.09]	[3.81]	[3.29]	[3.94]	[2.26]	[4.78]	[2.21]
XCash × OTC	0.734*	0.776	1.290*	0.503	1.250*	0.582*	1.029**	0.021	1.365**	0.659*
	[2.30]	[1.60]	[2.31]	[1.66]	[2.42]	[2.01]	[3.34]	[0.04]	[2.78]	[2.11]
XCash × 144A	0.555	0.177	0.597	0.337	0.454	0.486	0.607	-0.038	0.62	-0.325
	[1.08]	[0.26]	[1.04]	[0.55]	[0.89]	[0.67]	[0.75]	[0.08]	[1.17]	[0.51]
Sales Growth	0.135**	0.192**	0.158**	0.181**	0.102**	0.190**	0.185**	0.173**	0.029	0.203**
	[5.52]	[10.09]	[6.07]	[9.89]	[3.35]	[11.00]	[6.56]	[9.84]	[1.04]	[11.39]
Global Industry q	1.849**	1.068**	2.224**	0.928**	1.840**	1.184**	2.019**	1.098**	0.887**	1.296**
	[15.96]	[12.23]	[18.11]	[10.97]	[13.17]	[14.73]	[14.61]	[13.59]	[6.03]	[16.20]
Observations	11,592	20,563	10,052	22,103	7,976	24,179	8,177	23,978	8,568	23,199
Adjusted R^2	0.3	0.28	0.29	0.29	0.32	0.28	0.28	0.28	0.3	0.29
Wald test #1 (*p*-value)	0.91		0.40		0.32		0.37		0.04	
Wald test #2 (*p*-value)	0.78		0.40		0.13		0.01		0.77	
Wald test #3 (*p*-value)	0.83		0.93		0.93		0.79		0.53	

Table 7. Investors' valuation of excess cash: legal (formal) versus monitoring (informal) effects

This table reports cross-sectional regressions and coefficient estimates for the market value of excess cash. The dependent variable is the ratio of market value (sum of the market value of equity and the book value of short- and long-term debt) divided by total assets. The independent variables include excess cash holdings *XCash* defined as the residual from regression (2) in the appendix. To identify firms' cross-listing status, we use different binary variables: *Exchange* equals one for firms cross-listed on a U.S. exchange and zero otherwise. *OTC* equals one for over-the-counter cross-listed firms and zero otherwise. *144A* equals one for firms cross-listed through private placements and zero otherwise. *London* equals one if a firm has a London cross-listing and no U.S. exchange listing and zero otherwise. *ΔCoverage* is the difference between the three-year average number of analysts following the firm after the cross-listing event and prior the event. *ΔCHS* is similarly computed as the difference between the three-year average closely held shares post- and precross-listing. To assess whether investors' valuation of excess cash varies along with the different cross-listing types and with change in analyst following and ownership structure, we interact *XCash* with the cross-listing dummies, *ΔCoverage* and *ΔCHS*. To control for investment opportunities we include *Sales Growth* (the percentage change in sales from *t-2* to period *t*) and *Global Industry q* (the median industry Tobin's q, defined as the median market-to-book ratio of all firms that share the same SIC code). All specifications also include a set of (unreported) firm-specific variables that serve as proxies for firm profitability, financial and investment policy as defined in the text. All estimations only contain observations for which *XCash* is positive and include year and country fixed effects. We report heteroskedasticity and serial correlation robust t-statistics in brackets. ** and * indicate statistical significance at the 1% and 5% levels, respectively.

	U.S. Listings				London Listings		
Variables	**(1)**	**(2)**	**(3)**	**Variables**	**(4)**	**(5)**	**(6)**
Exchange	0.161**	0.153**	0.156**	*London*	0.116	0.035	0.104
	[5.58]	[5.30]	[5.41]		[0.79]	[0.24]	[0.70]
OTC	-0.04	-0.056	-0.053				
	[1.39]	[1.92]	[1.84]				
144A	0.013	0.01	0.025				
	[0.30]	[0.24]	[0.56]				
XCash	0.589**	0.590**	0.589**	*XCash*	0.578**	0.583**	0.579**
	[12.21]	[12.22]	[12.22]		[11.41]	[11.51]	[11.42]
XCash×Exchange	0.894**	0.863**	0.838**	*XCash×London*	0.625	0.211	0.514
	[3.90]	[3.73]	[3.62]		[1.89]	[1.54]	[1.48]
XCash×OTC	0.746**	0.645*	0.576*				
	[2.80]	[2.39]	[2.13]				
XCash×144A	-0.245	0.238	-0.305				
	[0.54]	[0.56]	[0.67]				
XCash×Exchange×ΔCoverage	0.151**		0.105*	*XCash×London×ΔCoverage*		0.749**	
	[3.71]		[2.14]			[4.62]	
XCash×OTC×ΔCoverage	0.313**		0.283**				
	[5.23]		[4.70]				
XCash×144A×ΔCoverage	0.187**		0.250**				
	[2.68]		[3.28]				
XCash×Exchange×ΔCHS		1.735**	1.025	*XCash×London×ΔCHS*			0.022
		[3.54]	[1.74]				[1.08]
XCash×OTC×ΔCHS		2.382**	2.052**				
		[4.41]	[3.77]				
XCash×144A×ΔCHS		-0.051	-0.295				
		[0.70]	[0.89]				
Sales Growth	0.172**	0.173**	0.172**	*Sales Growth*	0.174**	0.174**	0.174**
	[11.51]	[11.55]	[11.54]		[10.66]	[10.64]	[10.66]
Global Industry q	1.337**	1.327**	1.333**	*Global Industry q*	1.318**	1.316**	1.316**
	[19.15]	[18.99]	[19.10]		[16.89]	[16.86]	[16.85]
Observations	32,155	32,155	32,155		24,666	24,666	24,666
Adjusted R^2	0.28	0.28	0.27		0.24	0.24	0.24

Table 8: Investors' valuation of excess cash holdings: temporal evolution

This table reports cross-sectional regressions and coefficient estimates for the market value of excess cash. The dependent variable is the ratio of market value (sum of the market value of equity and the book value of short- and long-term debt) divided by total assets. The independent variables include excess cash holdings *XCash* defined as the residual from regression (2) in the appendix. To identify firms' cross-listing status, we use different binary variables: *Exchange* equals one for firms cross-listed on a U.S. exchange and zero otherwise. *OTC* equals one for over-the-counter cross-listed firms and zero otherwise. *144A* equals one for firms cross-listed through private placements and zero otherwise. To assess whether investors' valuation of excess cash varies along with the different cross-listing types, we interact *XCash* with the cross-listing dummies. To control for investment opportunities we include *Sales Growth* (the percentage change in sales from *t-2* to period *t*) and *Global Industry q* (the median industry Tobin's q, defined as the median market-to-book ratio of all firms that share the same SIC code). All specifications also include a set of (unreported) firm-specific variables that serve as proxies for firm profitability, financial and investment policy as defined in the text. To assess the evolution of the marginal value of excess cash and whether there is still an effect today, we use different subperiods that correspond to distinct market periods. In column (1), the period 1991-1999 spans the phase preceding the bursting of the Internet bubble. In column (2), the period 2000-2001 corresponds to a bear market. In column (3), the period 2002-2003 maps the post SOX period but encompasses 2002 which still corresponds to a bear market episode. Column (4) considers only year 2003. That is the last year for which we can estimate our full model as specified in (1). Note that to estimate our model for 2003 we need data until 2005 because we are including two-year lead changes on earnings and investment variables as controls. To evaluate the recent period as much as we can we replace in columns (5), (6) and (7) the two-year lead control variables by only one-year leads. This enables us to expand our estimation window. Finally, in columns (6) and (7) we split our sample in firms from developed and emerging markets. respectively. All estimations only contain observations for which *XCash* is positive and include year and country fixed effects. We report heteroskedasticity and serial correlation robust t-statistics in brackets. ** and * indicate statistical significance at the 1% and 5% levels, respectively.

	Full model				**One-year lead control variables**		
Variables	**1991-1999 (1)**	**2000-2001 (2)**	**2002-2003 (3)**	**2003 (4)**	**2003-2004 (5)**	**Developed 2003-2004 (6)**	**Emerging 2003-2004 (7)**
Exchange	0.025	0.513**	0.223**	0.188**	0.208**	0.318**	0.189**
	[0.59]	[9.23]	[4.27]	[2.68]	[6.58]	[6.22]	[2.82]
OTC	-0.08	0.047	-0.003	-0.001	-0.011	-0.018	-0.028
	[1.84]	[0.85]	[0.06]	[0.02]	[0.38]	[0.38]	[0.55]
144A	0.046	0.139	-0.05	-0.076	0.049	0.092	0.028
	[0.67]	[1.70]	[0.64]	[0.68]	[0.80]	[0.96]	[0.60]
XCash	0.583**	0.401**	0.495**	0.527**	0.555**	0.875**	0.318*
	[7.09]	[4.52]	[7.03]	[5.58]	[5.18]	[11.55]	[2.52]
XCash × Exchange	1.582**	0.601	0.881*	1.053*	0.913*	0.288	1.155**
	[4.59]	[1.47]	[2.24]	[2.15]	[2.21]	[1.55]	[3.12]
XCash × OTC	1.222**	0.101	0.574	0.508	0.497	0.302	0.588*
	[3.19]	[0.18]	[1.89]	[1.84]	[1.72]	[1.62]	[2.02]
XCash × 144A	-0.144	-0.044	0.02	0.093	0.068	0.122	0.038
	[0.26]	[1.01]	[0.58]	[0.57]	[0.42]	[0.83]	[0.38]
Sales Growth	0.168**	1.151**	0.121**	0.098**	0.112**	0.182**	0.087*
	[6.42]	[5.34]	[5.86]	[3.51]	[4.02]	[6.45]	[2.32]
Global Industry q	1.235**	1.286**	0.576**	0.611**	0.667**	1.077**	0.388**
	[10.38]	[9.79]	[5.69]	[4.47]	[7.33]	[10.27]	[3.12]
Observations	13,810	7,411	10,934	5,747	12,742	9,423	3,049
Adjusted R^2	0.28	0.46	0.23	0.27	0.24	0.26	0.19