International Evidence on Cash Holdings and Expected Managerial Agency Problems

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ABSTRACT

This paper uses managerial control rights data for over 5000 firms from 31 countries to examine the net costs and benefits of cash holdings. We find that when external country-level shareholder protection is weak, firm values are lower when controlling managers hold more cash. Further, when external shareholder protection is weak we find that firm values are higher when controlling managers pay dividends. Only when external shareholder protection is strong do we find that cash held by controlling managers is unrelated to firm value, consistent with generally prevailing U.S. and international evidence.

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1. INTRODUCTION

Theory predicts that a corporation's liquid cash holdings, which allow managers to more easily make investments, should be valued by outside shareholders based on: (1) whether the cash prevents underinvestment in positive NPV projects by well-intentioned managers (e.g., Myers (1984) and Myers and Majluf (1984)), or (2) whether it facilitates overinvestment in negative NPV projects or outright stealing by entrenched managers [Easterbrook (1984), Jensen (1986), and Myers and Rajan (1998)]. Ample empirical evidence suggests that cash holdings are valuable when underinvestment costs are high [Harford (1999), Opler, Pinkowitz, Stulz, and Williamson (1999), Pinkowitz and Williamson (2002), Mikkelson and Partch (2003) and Almeida, Campello, and Weisbach (2003)]. However, research focused on overinvestment costs has generally been unable to detect a relation between firm-level agency cost proxies, cash holdings, and firm value in the cross section, despite theoretical arguments to the contrary.

Our paper revisits these theoretical predictions. We obtain managerial control rights data for over 5000 firms from 31 countries and construct proxies that measure whether managers, in effect, fully control their firm, and are thus entrenched. We use these firm-level agency cost proxies to examine the net costs and benefits of corporate liquidity. We first find moderate, but not overwhelming, evidence that entrenched managers hold more cash and that this relation is stronger when country-level external shareholder protection is weak. We next find that firm values are lower when entrenched managers hold more cash and external country-level shareholder protection is weak. Our tests show that in countries with poor shareholder protection, an incremental dollar held inside an average firm has a marginal value of $0.76 to outside shareholders, unless managers are the largest blockholder, in which case that dollar is discounted to $0.39.

Further, when country-level shareholder protection is weak, we find that when entrenched managers pay dividends firm values are higher. Only when country-level governance is strong do we find that cash held by entrenched managers is not associated with lower firm values, consistent with the generally prevailing U.S. and international cross-sectional evidence.

Taken together, our results provide the first systematic evidence that, absent strong external shareholder protection, the combination of expected firm-level agency problems and high cash holdings is indeed negatively related to firm value, as theory predicts.

The remainder of the paper is organized as follows. In the next section, we review the literature and discuss predictions on the relations between cash holdings, dividends, firm- and country-level governance, and firm value. Section 3 explains the sample selection process, the data used, and the design of our empirical tests. Section 4 presents the results and Section 5 discusses robustness tests. Section 6 concludes.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Despite valid theoretical arguments, existing empirical research on U.S. firms generally finds little evidence that either poor firm-level governance is linked to higher cash holdings or that the combination of poor firm-level governance and high cash levels is linked to lower firm values.[1] One possible explanation for these findings is that

[1] Harford (1999), and Opler, Pinkowitz, Stulz, and Williamson (1999) do not find evidence that agency cost proxies have an important impact on cash holdings. Mikkelson and Partch (2003) find that agency costs do not explain operating performance differences among high cash firms. However, recent empirical work is beginning to challenge prevailing beliefs about U.S. firms. Harford, Mansi, and Maxwell (2006) report that firms with expected poor governance actually hold less cash, but that, for a given set of firms with high cash levels, firms with worse expected governance spend their cash more quickly, primarily on acquisitions. Dittmar and Mahrt-Smith (2006) find evidence that the value of cash can in part be determined by how investors expect cash to be used when there are potential managerial agency problems.

external corporate governance in the U.S. is strong enough that investors do not systematically discount the value of a poorly governed firm with relatively high cash holdings. We study this topic outside the U.S. to capture the variation that exists in country-level external shareholder protection, which should amplify the costs and benefits of holding cash within a firm.

Weak country-level shareholder protection is associated with more severe expected agency costs of managerial entrenchment [see, for example, LLSV (2002), Claessens, Djankov, Fan, and Lang (2002), Lins (2003), Lemmon and Lins (2003), and Klapper and Love (2004)]. If cash facilitates overinvestment or stealing by entrenched managers, we hypothesize that 1) firms with entrenched managers will hold more cash, particularly when country-level shareholder protection is poor, and 2) firm values will be lower when firms with entrenched managers hold high levels of cash, particularly when country-level shareholder protection is poor. Further, dividend payments have been shown by Easterbrook (1984), Jensen (1986, 1989), Zwiebel (1996), and Fluck (1998, 1999), LLSV (2000), and Faccio, Lang, and Young (2001) to lessen overinvestment costs.[2] Therefore, our third hypothesis is that firm values will be higher when firms with entrenched managers pay dividends and country-level shareholder protection is poor.

On the other hand, weak country-level shareholder protection is associated with more limited external finance opportunities [La Porta, Lopez-de-Silanes, Shleifer, and Vishny (hereafter LLSV) (1997, 1998)]. When firms are limited to accessing capital only from poorly developed home markets, capital constraints can occur [Reese and Weisbach (2002), Claessens and Laeven (2003), Lins, Strickland, and Zenner (2005), and Levine

[2] For U.S. firms, Fama and French (1998) find a positive relation between value and dividends. Across countries, LLSV and Faccio *et al*. conclude that well protected shareholders are able to use their power to get dividends out of managers who should be paying them. Pinkowitz, Stulz, and Williamson (2006) also incorporate dividends and find, as do we, that the relation between dividends and firm value is weaker in countries with stronger investor protection.

and Schmukler (2005)]. Absent agency cost considerations, cash can therefore be beneficial if it lessens underinvestment in profitable projects for constrained firms. However, managerial agency costs may outweigh underinvestment costs. In our tests, we find no evidence of a relative benefit to holding cash when country-level shareholder protection is poor.

To our knowledge, this paper is the first to test whether expected managerial agency problems at the firm and country level impact the value of cash holdings. Dittmar, Mahrt-Smith, and Servaes (2003) study the determinants of cash holdings and find that high cash levels are associated with poor country-level shareholder protection, but are not related to a country-level proxy for firm-level agency problems. This lack of a significant finding at the firm level could obtain because their tests primarily stress the importance of country-level shareholder protections, rather than firm-level agency costs. Further, their agency cost measure is relatively coarse. Dittmar *et al.* use a country level measure of the fraction of firms identified in a separate La Porta, Lopez-de-Silanes, and Shleifer (1999) dataset to be family controlled. They do not assess valuation effects in their paper. A paper contemporaneous to ours by Pinkowitz, Stulz, and Williamson (2006) finds that in countries with high investor protection, a dollar of liquid assets is worth roughly a dollar to minority investors, however in countries with poor investor protection, a dollar of liquid assets is worth much less. Pinkowitz *et al*. do not examine firm-level corporate governance.

Our work on the importance attached by investors to cash holdings and dividend payments in the context of poor firm-level and country-level governance is part of the growing literature on international corporate governance [for recent surveys, see Claessens and Fan (2002) and Denis and McConnell (2003)]. We know from prior

research that investors recognize the potential for expropriation that accompanies high levels of insider control and discount such firms, particularly when a country's external governance is weak. Our paper explores whether holding less cash, or making dividend payments, or both, lessens the valuation discount applied to firms with entrenched managers from poor external governance countries.[3]

3. METHODOLOGY AND DATA

In this section, we first describe the overall methodology for conducting our tests, then describe the construction of our variables, and conclude with summary statistics.

A. Methodology

We use a firm-level cross-sectional regression framework to explore our hypotheses developed in the previous section. First, we estimate regressions in which the level of cash is a function of several proxy measures for managerial entrenchment, and an interaction between these entrenchment measures and a proxy for poor country-level shareholder protection. We expect the net effect of the interaction between managerial entrenchment and poor shareholder protection to be positive with respect to cash. Second, we directly assess whether cash and agency problems affect firm value. We regress a proxy for Tobin's Q on an interaction between cash and managerial entrenchment and a further interaction between cash, managerial entrenchment, and poor shareholder protection. We expect the net effect of these interactions to be negative with respect to Tobin's Q. Finally, we assess the value of dividend payments by regressing Tobin's Q on an interaction between dividend payments and managerial entrenchment

[3] Other firm-level parameters shown to reduce the expropriation discount include: internationally recognized auditors (Mitton (2002)); exchange-listed American Depositary Receipts (Doidge, Karolyi, and Stulz (2004)); internationally syndicated bank loans (Harvey, Lins, and Roper (2004)); and international equity analyst coverage [Lang, Lins, and Miller (2004)].

and a further interaction between dividends, managerial entrenchment, and poor shareholder protection. We expect the net effect of these interactions to be positive. All regressions include control variables found by previous authors to explain either cash holdings or Tobin's Q.

We estimate country random effects models which allow interactions with shareholder protection to be tested. We employ the Hausman test to verify whether our choice of random country effects is appropriate – passing this test indicates that omitted country-level variables do not systematically bias our estimates.

In a separate robustness section, we describe several approaches employed to address potential endogeneity concerns. We do not use a simultaneous regression framework to assess cash and firm value because of the difficulties associated with finding appropriate instrumental variables. Other issues related to the validity of our results are also discussed in the robustness section.

B. Data and Variable Construction

We obtain ownership and control structure data for Western European firms from Faccio and Lang (2002); for emerging market firms from Lins (2003); and for Japan from Claessens, Djankov, and Lang (2000). We confine our analysis to non-financial firms to maintain consistency across the three ownership and control structure datasets. We obtain financial variable data from the Worldscope database for the year-end closest to December 31, 1996, since this point in time most closely corresponds to the date of our ownership and control data.[4] Our final sample consists of 5102 firms from 31 countries.

[4] Ownership and control data for Japanese and emerging market firms are from the 1995/1996 period and those from Western Europe range from 1996 to 1999, with the majority of sample observations occurring in 1996.

When merged, the three ownership structure datasets report the percentage of directly held stakes plus control rights obtained indirectly through the use of pyramids for the following types of blockholders: Family/Management, Government, Widely-Held Corporations, Widely-Held Financials, and Miscellaneous (which includes ownership by Trusts, Cooperatives, Foundations, Employees, etc.). From these data it is possible to identify the total control rights held by each type of blockholder. It is not possible to construct a consistent measure of the cash flow rights held by each blockholder because the datasets categorize cash flow rights using different algorithms.[5]

To measure expected firm-level governance, we focus on management/family control rights, since this group makes the operational and financial decisions of a firm. The management group consists of a firm's officers, directors, top-level managers and their family members. When management's control of a firm cannot be challenged internally, the capability to expropriate outside shareholders will be the highest. Therefore, we seek to construct measures of managerial entrenchment that indicate when managers, in effect, have full control of their firm.

From the available data we construct three measures of managerial entrenchment. The first is the percentage of control rights held by the management group and its family (*Mgmt control*). This measure implicitly assumes that effective control increases linearly with control rights. However, high raw levels of control may not always be necessary to establish effective managerial control; rather, control depends on the votes held by other blockholders. To account for this, we construct two more entrenchment measures. One is an indicator variable set equal to one when the management group and its family is the

[5] Faccio and Lang and Claessens *et al.* report the separation of ownership and control for the largest blockholder of their sample firms (which may not be the Family/Management group), while Lins reports this measure for all holdings of the Family/Management group (which may not be the largest blockholder).

largest blockholder of a firm's control rights (*Mgmt LBH*), and thus can outvote any other blockholder. The other is an indicator variable set equal to one when the management group's control rights exceed 20 percentage points and are greater in magnitude than the total of all control rights held by all other blockholders (*Mgmt 20GTAll*).[6] This more stringent measure takes into account the Maury and Pajueste (2005) findings that multiple large shareholders can influence firm value as well as the idea that managers need more than a token level of control rights before they can, in effect, fully control a firm.

We acknowledge that our managerial entrenchment measures assess only the capability for expropriation and not the incentive to expropriate. To measure incentives, we would need to know the cash flow ownership stakes held by the management group and its family, which we cannot obtain. However, our inability to incorporate managerial cash flow rights may not be crucial to our inferences. Even if cash flow rights (capturing incentive effects) are highly correlated with control rights (capturing entrenchment effects), the effect of control rights should dominate because it is non-linear. Managerial control of 51% of the shares will generally confer unequivocal control rights, and effective control can occur with much lower stakes. Thus, firms that are, in effect, fully controlled by their managers will have a "wedge" between their control and cash flow rights because they are controlled with less than 100% ownership. Any further separation of managerial control from cash flow rights via pyramids and superior voting shares may be of a second order effect.

A country's external shareholder protection is also an important governance variable for our tests. We use the LLSV (1998) measure of Antidirector Rights (which we call *SH Rights*). *SH Rights* range from 0 to 5, with higher values indicating that

[6] Twenty percentage points is the threshold used to designate that a controlling shareholder exists in La Porta *et al.* (1999).

corporate charters and legal rules treat outside shareholders more favorably.[7] We also wish to explicitly control for a country's capital market development, which may or may not be correlated with external shareholder protection. Dittmar *et al.* (2003) find that a private credit to GDP measure (*Private credit*) put forth by Levine, Loayza, and Beck (2000) significantly explains cash holdings. We use this variable as a control in all of our models.

Following the literature on cash holdings, our cash measure is the ratio of year-end cash and short-term investments to year-end net assets, where net assets are computed as assets less cash and short-term investments. We refer to this measure as cash to assets (*Cash/a*). Our dividend payment variable is a dummy variable equal to one if the firm paid dividends during the year, and zero otherwise (*Divdum*). As a measure of the value of a firm, we use *Tobin's Q* – computed as market value of equity less book value of equity plus book value of assets all divided by total assets (all year-end values).[8]

Several variables have been shown previously to explain variation in both *Cash/a* and *Tobin's Q*. We include these in all model specifications. We control for size using the natural logarithm of total assets in thousands of U.S. dollars (*Size*). We control for leverage with the ratio of short-term plus long-term debt divided by total assets (*D/a*) and for a firms' potential investment opportunity set with the ratio of capital expenditures to assets (*Capex/a*), all measured at year end. From an agency cost perspective, both variables are important given the McConnell and Servaes (1995) and Harvey, Lins, and Roper (2004) findings that debt can lessen managerial agency problems, particularly

[7] This variable is not reported for the Czech Republic, which is one of our sample countries. According to the World Bank Group the legal origin of the Czech Republic is German, so we set *SH Rights* for this country equal to the sample mean of 2.33 for German origin countries from LLSV (1998).

[8] To avoid problems with outliers but not lose observations, Tobin's Q and all other financial variables are winsorized the 1st and 99th percentile of the full sample by setting outlying values to the 1st and 99th percentiles, respectively. Dittmar *et al.* (2003) also winsorize all variables at the 1st and 99th percentiles, while Pinkowitz *et al.* (2006) trim their sample at the 1st and 99th percentile of each variable.

when investment opportunities are poor. We employ the ratio of cash flow to year-end net assets (*CF/a*) as a proxy for profitability, which, all else equal, should generate higher levels of cash and higher *Tobin's Q* values. Cash flow is earnings before interest and taxes plus depreciation minus interest minus taxes minus dividends. We also include industry dummy variables (as defined in Campbell (1996)) to control for systematic effects on cash holdings and firm value that may be associated with certain industries.

For consistency with Kim, Mauer, and Sherman (1998), Harford (1999), Opler *et al.* (1999) and Dittmar *et al.* (2003), we include two additional control variables in the models where the level of cash is the dependent variable. These are the year-end ratio of non-cash net working capital (current assets minus current liabilities minus cash and short-term investments) to net assets (*NWC/a*), which represents additional liquid assets, and year-before to year-end sales growth (*Sgr1yr*), which represents current and future performance.[9]

C. Summary Statistics

Table 1 reports the means, by country, of key managerial control variables and financial variables used in our analysis. The first four columns show that the level of control held by a firm's top managers and their families is substantial. *Mgmt control* averages 25 percentage points and the total percentage control held by all other blockholder types averages 13 percentage points. The next two columns report statistics for the other two measures of managerial entrenchment, *Mgmt LBH* and *Mgmt 20GTAll*. Managers and their families are the largest blockholder in 54% of sample firms, a result

[9] While this variable can also be considered as a growth proxy, we find that it is not highly correlated with our capital spending to assets variable. For robustness, we re-estimate all of our cash holdings models using either sales growth or capital expenditures, but not both, and all results continue to hold.

consistent with previous findings such as La Porta *et al.* (1999), Claessens *et al.* (2000), Faccio and Lang (2002), Denis and McConnell (2003), and Lins (2003), and management/family group control exceeds 20 percentage points and exceeds the total control held by all other blockholders in 33% of sample firms.

The fifth column displays statistics for *Cash/a*. The overall mean is 0.12, which ranges from a low of 0.04 for firms from Argentina to a high of 0.16 for Norwegian and Japanese firms. As shown in the sixth column of Table 1, the mean of *Tobin's Q* is 1.50, and this measure displays wide dispersion. Because *Tobin's Q* values can be affected by country-level accounting requirements (such as whether book values are frequently marked to market), the observed dispersion in this measure underscores the importance of testing whether omitted country-specific variables could lead to biased coefficient estimates in our cross-country regressions (we conduct such tests). The seventh column shows that 65% of the firms in our sample pay dividends, which is consistent with the findings of LLSV (2000). Column eight shows that our sample consists of relatively large firms, with mean total assets above US$ 1.7 billion.

The final five columns report summary statistics for a variety of other control variables used in our regression analysis which also closely track those found in other studies. We do not discuss them in detail for the sake of brevity.

4. RESULTS

In this section, we first report the results of our cash holdings regression models and then report the results of our firm value regression models.

A. Cash holdings

Table 2 reports the results of models in which the log of *Cash/a* is the dependent variable. The first two models contain *Mgmt control* as the managerial entrenchment variable of interest, Models (3) and (4) feature *Mgmt LBH*, and Model (5) incorporates *Mgmt 20GTAll*.

In Model (1), we find no relation between the percentage of managerial control and cash holdings. We do observe country-level parameter results consistent with those found by Dittmar *et al*. (2003) – the coefficient on *SH Rights* is negative, but in our sample it is insignificant, while the coefficient on *Private credit* is positive and significant.[10] The coefficients on *CF/a* and *Sgr1yr* are positively related to cash holdings while the coefficients on *D/a*, *Capex/a* and *NWC/a* are negatively related to cash holdings. An indicator variable for dividend payments, *Divdum*, is not related to cash holdings. These relations hold for all models in Table 2.

In Model (2) we test whether the lack of a relation between managerial control and cash holdings changes when country-level governance is explicitly considered. To accomplish this, we add an interaction term between *SH Rights* and *Mgmt control*, but find that this interaction is insignificant as well. Overall, the first two models of Table 2 indicate that managerial control is not related to cash holdings. Recall that this linear managerial entrenchment measure does not take into account whether substantial control rights are held by non-management blockholders.

Models (3) and (4) repeat the previous tests using the *Mgmt LBH* measure. Here the outcome is much different. We find that cash holdings are significantly higher when

[10] It is possible that the discrepancy in statistical significance between our *SH Rights* results and those of Dittmar *et al.* may be attributable to their larger sample (over 8400 firms for multivariate tests from 45 countries) or to differences in firms covered by their data source (Global Vantage).

managers control more votes than any other blockholder. Because our regressions control for factors such as growth opportunities that are linked to the liquidity needs of a firm, the positive relation between *Mgmt LBH* and *Cash/a* indicates that entrenched managers may be holding more cash in order to maximize their own utility.

In contrast to Model (2), Model (4) provides evidence that when outside shareholders are less protected, firms with potentially entrenched managers hold more cash. Both the stand-alone coefficient on *Mgmt LBH* and the coefficient on the *Mgmt LBH* and *SH Rights* interaction are significant at the 1% level. To assess whether these coefficients are potentially important in an economic sense, we compute their effect over the range of the *SH Rights* measure. In a high protection country such as the U.K. (*SH Rights* = 5), a firm with entrenched managers has no meaningful difference in its cash level compared to a firm without entrenched managers, since 0.388 + (-0.083 x 5) = -0.027. However, if a firm is from a low protection country such as Italy (*SH Rights* = 1) and its management group controls more votes than anyone else, the model indicates that its cash level will be 31% percent higher than a comparable firm whose management is not the largest control rights blockholder (computed as 0.388 + (-0.083 x 1) = 0.305).[11]

Consistent with Model (3), Model (5) shows that when managerial control exceeds 20 percentage points and exceeds the totality of all other blockholdings, cash levels are also significantly higher. We next estimate the model with an interaction between *Mgmt 20GTAll* and *SH Rights*. While the coefficient is negative, this model does not pass the Hausman test so we do not report it.

[11] The low extreme for this measure in our sample is Belgium which has a *SH Rights* measure of zero, indicating that its firms with effective managerial control would have 38.8% higher cash levels than comparable firms controlled by a large non-management blockholder.

Taken together, our results on the determinants of cash holdings in Table 2 provide some evidence that expected managerial entrenchment, with its associated agency costs, is linked to higher levels of cash holdings, and that this relation is exacerbated when country-level shareholder protection is weak. However, the result does not hold for all managerial entrenchment proxies. Therefore, we are reluctant to draw strong conclusions. We next turn to our firm-value analysis.

B. Firm Value

Our tests draw from the cross-country *Tobin's Q* models used by LLSV (2002), Claessens, Djankov, Fan, and Lang (2002), and Lins (2003).[12] Before we report results regarding our main valuation hypotheses, we first estimate several basic *Tobin's Q* models for comparability with prior research. LLSV (2002) find for a sample of 539 firms from 27 mostly well-developed countries that *SH Rights* is positively and significantly related to *Tobin's Q*. In Model (1) of Table 3 we obtain a coefficient similar to what is reported by LLSV, but it is insignificant.[13] Lins (2003) finds that in low-protection emerging markets *Tobin's Q* values are lower when the percentage of managerial control is higher and when managers hold the largest block of control rights. Model (2) shows that *Tobin's Q* is decreasing in *Mgmt control* across our broad sample of countries. However, Models (3) and (4) show no significant relation between *Tobin's Q* and *Mgmt LBH* or *Mgmt 20GTAll*. Consistent with prior literature, the coefficients on

[12] Our proxy for *Tobin's Q* is the same as the one employed by LLSV, Claessens *et al.*, and Lins.

[13] While it is impossible to know the source of the difference in significance between our result and the result reported by LLSV, sample construction could account for the discrepancy. LLSV employ a sample of the largest 20 non-financial Worldscope firms across 27 countries whereas our sample matches all non-financial firms covered by Worldscope to the extant available control structure data across 31 countries.

Size and *D/a* are negative and significant, and the coefficient on *Capex/a* is positive and significant in all Table 3 models.[14] The *Private credit* coefficient is not significant.

In Model (5) of Table 3, we begin our assessment of whether, independent of country-level shareholder protection effects, cash holdings have implications for firm value. We add *Cash/a* along with *CF/a* since profitable firms are likely to have more cash, all else equal. We also include our *Divdum* variable. We find that the coefficient on *Cash/a* is positive and significant. While this result indicates that holding some cash can be valuable, we do not draw too strong an inference because of potential endogeneity concerns. Specifically, it is possible that a company with a lot of growth opportunities will hold high cash balances in anticipation of making its future investments.[15] We find a positive and significant coefficient on *CF/a* and an insignificant coefficient on *Divdum*.

We next test whether, across all countries, higher levels of cash incrementally impact *Tobin's Q* when managers are likely to be entrenched. To accomplish this, we include in our models an interaction between *Cash/a* and *Mgmt control*, *Mgmt LBH* or *Mgmt 20GTAll*. In Model (5) the effect of cash is significantly negative when *Mgmt control* increases, but in Models (6) and (7), using the other two measures of managerial entrenchment, the effect is statistically zero.

While our Table 3 regression models account for country-level effects, they do not allow country-level shareholder protection to interact with cash and managerial

[14] LLSV use a three-year growth in sales variable in their model as a growth opportunity proxy. Because of data limitations for many of our sample firms in the early 1990s, we employ the contemporaneous measure of capital expenditures to assets instead. Lins (2003) finds that, where available, three-year sales growth is highly correlated with capital expenditures to assets. We find that this is true for our larger sample. For robustness, we re-estimate our models using one-year sales growth instead of capital expenditures to assets and find that our results are unchanged. The overall R-squared values using one-year sales growth are lower than those using capital expenditures to assets, so we employ the latter growth proxy in all of our models.

[15] Although we include capital expenditures as a control for growth opportunities (and find it to be positively and significantly related to Q), it is also possible that this measure does not fully capture a firm's potential for growth. Thus, one could expect to observe a positive correlation between Tobin's Q and cash balances, but it does not necessarily follow that the high cash balance caused the higher firm value.

entrenchment. Tables 4 and 5 present models that directly test our hypothesis that firm values will be particularly low when firms with entrenched managers hold high levels of cash and country-level shareholder protection is poor.

We begin Table 4 by testing only country-level governance effects for comparability with Dittmar *et al.* (2003) and Pinkowitz *et al.* (2006). In Model (1) we interact *SH Rights* with *Cash/a* and find a positive and significant coefficient (*p*-value = 0.00). This coefficient indicates that cash holdings are more valuable as shareholder protection increases. Our finding that there is no relative valuation benefit to holding cash when shareholder protection is poor is consistent with the results directly obtained in Pinkowitz *et al.* (2006) and implied in Dittmar *et al.* (2003).[16]

We now assess firm-level governance. In Model (2) of Table 4, we regress *Tobin's Q* on interactions between cash, managerial entrenchment, and shareholder protection. The stand-alone coefficient on *Cash/a* is positive and significant (1.721, *p*-value = 0.00) and the *Mgmt control*Cash/a* interaction coefficient is negative and significant (-1.756, *p*-value = 0.00). The negative interaction coefficient indicates that investors incrementally discount the cash held by firms with managers that are expected to be entrenched. Further, the three-way interaction between *Mgmt control*, *Cash/a*, and *SH Rights* has a positive and significant coefficient (0.368, *p*-value = 0.01). This coefficient is consistent with our hypothesis that investors additionally discount the value of firms with high cash and entrenched managers when country-level shareholder protection is poor. These results are economically significant as well. For a firm with the mean *Cash/a* ratio of 0.12, a decline in *SH Rights* from 5 to 1 and a rise in managerial

[16] It is important to note that Model (1) implies only a relative value reduction associated with holding cash when investor protection is poor, and not a net value reduction. Even for a firm with external shareholder rights equal to one, the positive 0.497 coefficient on the interaction of *Cash/a* and *SH Rights* outweighs the stand-alone coefficient on *Cash/a* of -0.281.

control rights from the 25th percentile (0.00) to the 75th percentile (0.46) corresponds to a 0.178 decline in *Tobin's Q*.[17] With a mean sample *Tobin's Q* of 1.50, this corresponds to a 12% reduction in *Tobin's* Q on average.

The third model of Table 4 uses *Mgmt LBH* as the managerial entrenchment measure. Recall that, absent shareholder protection considerations, we found in Table 3 that the *Mgmt LBH*Cash/a* interaction had no impact on *Tobin's Q*. When we take into account *SH Rights*, we find that the interaction between *Mgmt LBH* and *Cash/a* is significantly negatively related to *Tobin's Q*. The *Mgmt LBH*Cash/a*SH Rights* coefficient also shows that this negative effect is significantly more pronounced when *SH Rights* are lower. As with Model (2), the results are economically significant. The coefficients indicate that when a firm has the mean level of cash holdings and the management group is the largest blockholder of control rights, a decline in *SH Rights* from 5 to 1 corresponds to a 0.332 decline in *Tobin's Q*.[18] Model (4) repeats the test with the *Mgmt 20GTAll* managerial entrenchment measure and finds similar results. Taken together, our Table 4 results are all consistent with the notion that the combination of high cash holdings and poor firm-level and country-level governance contribute to multiple layers of costly agency problems.[19]

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[17] The *Mgmt control*(Cash/a)* coefficient shows that, all else equal, a change in managerial control from 0.00 to 0.46 is associated with a 0.097 lower *Q* value (0.12*-1.756*(0.46-0.00)=-0.097). The *Mgmt control*(Cash/a)*SH Rights* coefficient shows that a change in *Mgmt control* from 0.00 to 0.46 for an average-cash-level firm from a country with *SH Rights* of 1 corresponds to a 0.081 lower *Q* value compared to a similar firm from a country with *SH Rights* of 5 (0.12*0.368*(0.46-0.00)*(1-5)= -0.081). Summing up, the net effect is a reduction in *Q* of 0.178 (= -0.097-0.081).

[18] The three-way interaction coefficient of 0.393 shows that, all else equal, compared to an average-cash-level firm with effective managerial control from a country with *SH Rights* of 5, a similar firm from a country with *SH Rights* of 1 would have an incrementally lower *Q* value of 0.189 (=0.393*1*0.12*(1-5)). The coefficient of –1.194 on *Mgmt LBH*Cash/a* indicates a 0.143 lower *Q* value (= -1.194*1*0.12). Summing up, the net effect is a reduction in *Q* of 0.332 (= -0.189 – 0.143).

[19] Using the same procedure outlined in Footnotes 17 and 18, the interactions with *Mgmt 20GTAll* show that when benchmarked against an average-cash-level management-controlled firm from a country with *SH Rights* equal to 5, the net reduction in *Q* for a similar firm from a country with *SH Rights* of 1 is 0.277.

In Table 5 we take another cut at testing the relationship between firm value, cash holdings, managerial control, and shareholder rights. Instead of using triple interactions with *SH Rights* (which make interpretations somewhat complicated), we re-estimate the simpler *Tobin's Q* models from Table 3 and split our sample into subgroups based on a country's *SH Rights* score. Such a procedure also allows the coefficients on the control variables to vary across shareholder protection regimes. Models (1) through (3) are estimated on the "*Low SH Rights*" subsample which contains countries that score below 4 on the *SH Rights* measure. All three models show a negative and significant (at the one, five, and ten percent levels) relation between *Tobin's Q* and the interaction of *Cash/a* with *Mgmt control, Mgmt LBH,* or *Mgmt 20GTALL*. We can assign an economic interpretation to these coefficients along the lines of Faulkender and Wang (2006) and Dittmar and Mahrt-Smith (2006). The average *Tobin's Q* value for our *Low SH Rights* subsample firms is 1.37. Thus, Model (2) shows that in low *SH Rights* countries, an incremental dollar held inside an average firm has a marginal value of $0.76 (computed as 1.04/1.37) to shareholders, unless managers are the largest blockholder, in which case that dollar is discounted by shareholders to $0.39 (computed as (1.037 – 0.501)/1.37).

These first three models in Table 5 confirm the Table 4 inferences that when country-level shareholder protection is poor, holding cash is incrementally less valuable when managers are likely to have effective control of their firm. These three models also allow one to infer that, in low protection countries, managerial control on its own is not particularly harmful to firm values. Instead, it is the combination of managerial control and high levels of cash that reduce firm values.

In contrast, Models (4) through (6) of Table 5, which are estimated in the "*High SH Rights"* (scores of 4 or 5) subsample, show that management control appears to be

negatively related to *Tobin's Q*, but is positively related to *Tobin's Q* when interacted with cash. However, robustness tests which we describe in the next section show that this result is driven entirely by Japanese firms, so we do not draw any conclusions regarding these interaction coefficients. Also interesting to note from Table 5 is that cash on its own is more highly valued in high protection countries, a result consistent with the Pinkowitz, Stulz, and Williamson (2006) findings.

Finally, we wish to test our hypothesis that firm values will be higher when firms with entrenched managers pay dividends and external shareholder protection is poor. Table 6 contains previously estimated *Tobin's Q* regressions which feature additional interactions between the dividend indicator variable, managerial entrenchment, and shareholder rights. LLSV (2000) speculate that paying dividends will be value increasing as shareholders are less protected. To formally test this, we interact *SH Rights* with *Divdum* in the first model. The coefficient is negative and significant, which provides support for the ideas put forth, but not explicitly tested, in LLSV (2000).

We next assess the interaction between dividend payments and managerial entrenchment, without considering shareholder protection. Models (2) through (4) show that there is no significant relation between *Tobin's Q* and the interaction of *Divdum* with *Mgmt control*, *Mgmt LBH*, or *Mgmt 20GTALL*.

In Models (5) through (7) we incorporate shareholder protection into our dividend analyses and find strong results. We include an interaction term between *Mgmt control (or Mgmt LBH* or *Mgmt 20GTALL*), *Divdum*, and *SH Rights*. The coefficients on all of these three-way interaction terms are negative and highly significant. These coefficients suggest that outside investors especially value dividends paid by controlling managers when their shareholder rights are least protected, consistent with our hypothesis.

For the sake of brevity, we do not separately tabulate the results of sample splits based on high and low *SH Rights*, although similar inferences obtain. Throughout our dividend analysis, we also find that all of our previously identified relationships between firm value and the combination of high cash holdings and expected managerial agency problems continue to hold.

5. ROBUSTNESS TESTS

To help ensure the validity of our results, we conduct a number of tests of robustness in this section. First, we note that just over 40% of our sample firms come from two countries: Japan and the U.K. Further, Japanese firms have by far the lowest percentage of control rights held by the management and family group.[20] To assess whether our results are driven by one or both of these countries, we re-estimate all of our models and first exclude firms from Japan, then from the U.K., and then from both. We find that all of our full sample results continue to hold in magnitude and significance when we remove Japan, then the U.K., and then both countries from our sample. Because Japan and the U.K. are *High SH Rights* countries, our *Low SH Rights* subsample results are unaffected. However, as mentioned previously, when we remove Japan from our *High SH Rights* subsample regressions, the positive coefficients on the interactions between cash and managerial entrenchment are no longer significant.

We also re-estimate our models using alternative cash holdings measures. Consistent with prior literature, in our *Tobin's Q* models we used the ratio of *Cash/a* and in our cash holdings models we used the log of *Cash/a*. We now use the log of cash to

[20] For Japan, Lins and Servaes (1999) find that strong keiretsu membership is an indicator of governance problems, whereas ownership structure is not. Claessens, Djankov, Fan, and Lang (2002) exclude Japan from their analysis of ownership structure in East Asia because the keiretsu system influences governance in ways that cannot be captured by ownership data.

sales (*Cash/s*) as the dependent variable in our cash holdings models and find equivalent results. Next, we employ the log of either *Cash/a* or *Cash/s* in our *Tobin's Q* models. We find results that are similar magnitude and significance, but the explanatory power of these models is sometimes lower. As a further step, we estimate all cash holdings and *Q* models using cash measures different from those generally used in the literature. First, we use the ratio of cash and short-term investments to total assets (rather than to net assets). Second, we transform the cash to net or total asset ratio based on the method used by Himmelberg, Hubbard, and Palia (1999) to transform fractional managerial ownership. Specifically, we compute cash as log ((Cash/net assets)/(1- Cash/net assets)) and as log ((Cash/total assets)/(1- Cash/total assets)). We find that in all cases our results continue to hold with these new cash measures.

We next investigate whether cash flow identity issues cloud the interpretation of our models. The cash flow identity issue occurs because, by definition, ending cash balances will be a direct function of cash outflow variables such as interest payments, dividend payments, and capital expenditures over the year's time, and some of these variables are in our models. It is possible that measurement error in a cash-flow-identity determinant of cash over the year can induce spurious correlation with cash levels at the end of the year. If so, our inferences regarding governance variables may be wrong.

We address this possibility by lagging variables since it will not be the case that, for instance, year-before ending capital expenditures will directly determine current-year ending cash balances. We first lag all of our independent financial data variables by one year so that they are as of year-end 1995 (our governance variables as of 1996 are likely to be stable over a one year period) and re-estimate our *Cash/a* and *Tobin's Q* models. We lose 451 firms due to Worldscope data limitations. In an alternate procedure, we go

forward to 1997 to compute *Cash/a* and *Q* measures and re-estimate both sets of models on our existing 1996 determinants (losing 49 firms due to a lack of 1997 data). In both sets of these lagged-variable models, our results remain at least as strong in terms of magnitude and significance, and they are sometimes stronger.

If a firm makes a simultaneous determination of its investment policy, its dividend policy, and its cash levels, for instance, then this could make our coefficient estimates inconsistent. Given the difficulties we (and other researchers) have in finding a set of instrumental variables that predict *Cash/a* levels, but do not predict *Tobin's Q* levels, we do not attempt to specify a simultaneous regression model framework. Instead, we follow the general outline set forth by Opler *et al.* (1999) (page 27) and restructure our models so that likely simultaneous determinants of cash are omitted from our models. This analysis is nuanced, because some of the variables that are potentially simultaneous with cash will also be important control variables likely to affect *Q* and managerial control, and their omission could instead result in an omitted variable bias.

In our cash holdings models, we omit capital expenditures and the dividend dummy. Next, we restructure our total debt to assets variable to comprise only long term debt to assets and not current debt and include this variable in our cash models. We do this for two reasons. First, by omitting capital expenditures, we are in need of another growth opportunity proxy. Mehran (1992) reports that long-term debt is strongly correlated with growth opportunities. Second, current debt, paid within the year, is the debt component most likely to be simultaneous with cash. In our *Tobin's Q* models, we omit capital expenditures and the dividend dummy but retain the long-term debt to assets measure since the calculation of *Tobin's Q* we use mechanically depends on the ratio of book leverage to assets. When we re-estimate our *Cash/a* and *Q* models in "reduced

form," we find that our results continue to hold overall, but that the significance is reduced for a few of the *Cash/a* models.

We also allow for the existence of transitory holdings of cash in our *Cash/a* models. The idea is that a firm may have accumulated funds it is waiting to spend next year, which will influence year-end cash levels. Following Opler *et al.* (1999) (page 29), we add to our models next year's change in cash holdings. We find that our results are generally robust to the inclusion of this variable, with the exception that one of the managerial entrenchment coefficients is no longer significant.

We next investigate the possibility that our *Tobin's Q* results are driven by unspecified correlations with growth opportunities rather than by expected agency problems. To accomplish this, we add to our *Q* models an interaction between non-cash net working capital to net assets (*NWC/a*) and *Mgmt control, Mgmt LBH,* or *Mgmt 20GTALL*. One might expect *NWC/a* to be related to growth opportunities in ways that are similar to *Cash/a*; however, the ability to use net working capital for management's interest is not as great as the ability to use cash. Thus, if the net working capital and managerial entrenchment interaction coefficients are less pronounced than those on the cash and entrenchment interactions, then it is reasonable to infer that managerial agency costs, rather than unmodeled growth opportunities, are driving the results. We find that the *NWC* interaction coefficients are much smaller in magnitude and are almost always insignificant, supporting our agency cost interpretation.

Finally, we are concerned that, for some firms in extreme financial distress, the value of cash may be uniquely different than for the sample as a whole. We use negative book equity as an easy-to-compute proxy for extreme financial distress. We find that 99 of our sample firms have negative book equity. We remove these firms and re-estimate

all of our models. The results are always at least the same in magnitude and significance when these extreme financial distress cases are removed, and are sometimes stronger.

6. CONCLUSION

Existing U.S. and international research generally finds that, despite valid theoretical arguments to the contrary, expected firm-level agency costs coupled with high cash holdings are not associated with lower firm values in the cross section. In this paper, we revisit this conclusion using detailed data for a sample of over 5000 firms from 31 countries. Our analysis shows that outside investors discount the value of cash held by firms likely to have extreme managerial agency problems because their managers appear to be entrenched and external shareholder protection against expropriation is poor. We also show that a choice to pay dividends enhances firm value when these multiple layers of expected managerial agency problems exist. Overall, our findings provide the first systematic evidence that, absent strong external protections, the combination of managerial entrenchment and a willingness to retain rather than pay out cash is indeed negatively related to firm value, as theory predicts.

Given these findings, several possible extensions for future research emerge. One extension is to investigate cross-sectionally the factors that drive some firms with expected managerial agency problems to choose mechanisms that pay out cash while others do not. Another extension is to investigate whether groups of firms organized in a pyramid structure tend to hold more cash in firms at the top of the pyramid compared to those at the bottom. Such a finding could provide evidence that cash is tunneled out of a system of firms in a way that minimizes the personal costs borne by controlling managers and maximizes the costs borne by minority shareholders.

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Table 1
Summary Statistics by Country

Mean values are reported for a sample of 5102 non-financial firms covered by the Worldscope database in 1996 for which the largest blockholder of a firm's control rights can be established using the ownership structure datasets of Claessens, Djankov, and Lang (2000), Faccio and Lang (2002) and Lins (2003). Financial data are for the fiscal year-end closest to December 31, 1996. *Mgmt control* is the total percentage of all control stakes held directly and indirectly by a firm's officers and directors and their families. *Nonmgmt control* aggregates the ultimate control rights held by all entities other than management. *Mgmt LBH* is the percentage of firms for which the management group and its family is the largest blockholder of control rights. *Mgmt 20GTAll* is the percentage of firms for which management group control exceeds 20 percentage points and exceeds total non-management blockhodings. *Cash/a* is the ratio of cash and equivalents to net assets. Net assets are total assets minus cash and short-term investments. *Tobin's Q* is the market value of equity plus total assets less book value of equity all divided by total assets. *Div* is the percentage of firms by country that paid dividends. *Size* is total assets in millions of U.S. dollars. *D/a* is short-term debt plus long-term debt to total assets. *Capex/a* is the ratio of capital expenditures to assets. *NWC/a* is the ratio of net working capital to net assets, where NWC is current assets minus current liabilities minus cash and equivalents. *CF/a* is the ratio of cash flow to net assets, where cash flow is operating income plus depreciation and amortization minus interest minus taxes minus dividends. *Sgr1yr* is a firm's one-year sales growth.

Country	#Firms	Mgmt control	Nonmgmt control	Mgmt LBH	Mgmt 20GTAll	Cash/a	Tobin's Q	Div	Size	D/a	Capex/a	NWC/a	CF/a	Sgr1yr
Argentina	9	16%	38%	33%	33%	0.04	1.27	89%	3589	0.30	0.09	-0.06	0.09	0.19
Austria	49	39%	19%	59%	57%	0.12	1.39	63%	980	0.26	0.07	0.09	0.09	0.08
Belgium	69	35%	11%	70%	57%	0.12	1.38	65%	1894	0.23	0.06	0.04	0.08	0.12
Brazil	59	34%	38%	51%	31%	0.11	0.90	61%	2671	0.28	0.08	-0.04	0.08	0.25
Chile	30	45%	14%	83%	57%	0.06	1.43	80%	1290	0.22	0.07	0.05	0.08	0.16
Czech Rep	11	19%	27%	55%	27%	0.06	1.13	36%	171	0.19	0.07	0.03	0.10	0.06
Finland	60	28%	14%	57%	43%	0.13	1.52	80%	1055	0.27	0.09	0.06	0.13	0.11
France	400	47%	8%	80%	68%	0.13	1.36	60%	2412	0.22	0.04	0.06	0.08	0.08
Germany	382	49%	11%	80%	66%	0.08	1.45	50%	2510	0.20	0.07	0.15	0.09	0.09
Hong Kong	198	41%	12%	81%	65%	0.11	1.29	71%	767	0.25	0.06	0.01	0.05	0.11
Indonesia	52	39%	22%	67%	44%	0.12	1.28	79%	476	0.34	0.10	0.07	0.10	0.16
Ireland	44	12%	13%	30%	14%	0.15	1.66	61%	490	0.24	0.07	-0.01	0.10	0.20
Israel	12	31%	19%	67%	50%	0.11	1.23	67%	1134	0.25	0.08	0.08	0.03	0.05
Italy	111	44%	14%	77%	72%	0.12	1.14	54%	4257	0.22	0.06	0.05	0.06	0.77
Japan	986	3%	12%	14%	7%	0.16	1.22	67%	2949	0.31	0.03	-0.04	0.04	0.05
Korea (South)	163	16%	8%	74%	25%	0.07	1.00	45%	2539	0.50	0.08	-0.05	0.04	0.15
Malaysia	248	29%	24%	70%	21%	0.10	2.25	79%	609	0.27	0.08	-0.00	0.06	0.26
Norway	87	26%	19%	60%	36%	0.16	1.66	62%	818	0.31	0.12	0.01	0.12	0.22
Peru	12	41%	22%	67%	67%	0.10	1.44	42%	393	0.21	0.07	0.08	0.10	0.24
Philippines	35	44%	11%	86%	46%	0.11	1.47	60%	594	0.21	0.12	0.03	0.10	0.14
Portugal	71	32%	19%	69%	46%	0.06	1.12	54%	752	0.27	0.05	0.07	0.08	0.05
Singapore	136	32%	27%	65%	20%	0.15	1.49	74%	516	0.23	0.09	-0.00	0.07	0.07
So. Africa	91	34%	26%	57%	41%	0.10	1.50	78%	813	0.13	0.08	0.08	0.09	0.14
Spain	109	35%	12%	64%	45%	0.08	1.33	61%	2267	0.18	0.05	0.02	0.08	0.07
Sri Lanka	6	31%	0%	100%	50%	0.07	1.01	67%	59	0.28	0.10	0.08	0.08	0.14
Sweden	131	25%	12%	59%	34%	0.12	1.70	67%	1419	0.21	0.06	0.09	0.09	0.16
Switzerland	109	38%	8%	69%	53%	0.14	1.40	70%	2090	0.27	0.05	0.06	0.10	0.11
Taiwan	122	18%	5%	83%	36%	0.12	1.88	31%	516	0.25	0.07	0.06	0.09	0.05
Thailand	145	21%	20%	55%	37%	0.07	1.13	48%	392	0.45	0.08	-0.03	0.05	0.15
Turkey	30	32%	32%	53%	47%	0.14	2.08	60%	369	0.14	0.10	0.13	0.17	0.93
UK	1135	16%	10%	46%	20%	0.12	1.87	74%	987	0.18	0.07	0.04	0.07	0.14
Overall Mean	*180*	*25%*	*13%*	*54%*	*33%*	*0.12*	*1.50*	*65%*	*1717*	*0.25*	*0.06*	*0.03*	*0.07*	*0.12*

Table 2
The Relation Between Cash Holdings, Ownership and Shareholder Rights

The dependent variable is log (*Cash/a*). Log *(Size)* is the log of total assets in millions of U.S. dollars. *Divdum* equals to 1 if the firm pays dividends and 0 otherwise. *Mgmt control* is the percentage of control rights held by the management group and its family. *Mgmt LBH* is a dummy variable set to unity when the management group and its family is the largest blockholder of control rights. *Mgmt 20GTAll* is a dummy variable set to unity when management control rights are greater than 20% and exceed the total of all other control rights combined. *SH Rights* is the Antidirector Rights index from LLSV (1998), Table 2, and ranges from 0 to 5 with lower scores indicating fewer shareholder rights. *Private credit* is the ratio of private credit by deposit money banks and other financial institutions to GDP as computed by Levine, Loayza, and Beck (2000). The rest of the variables are explained in Table 1. Regressions include industry dummy variables based on industry groupings in Campbell (1996) and country random effects (both unreported for brevity). *p*-values are in parentheses below each coefficient.

Independent variables	(1)	(2)	(3)	(4)	(5)
Log (size)	0.052	0.053	0.057	0.058	0.055
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
D/a	-2.430	-2.427	-2.445	-2.460	-2.438
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Capex/a	-0.015	-0.015	-0.016	-0.015	-0.016
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
NWC/a	-1.762	-1.767	-1.766	-1.768	-1.762
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
CF/a	1.851	1.853	1.858	1.841	1.846
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Sgr1yr	0.001	0.001	0.001	0.001	0.001
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Divdum	-0.012	-0.010	-0.016	-0.017	-0.013
	(0.78)	*(0.81)*	*(0.71)*	*(0.69)*	*(0.75)*
Private credit	0.296	0.297	0.298	0.296	0.299
	(0.01)	*(0.00)*	*(0.01)*	*(0.02)*	*(0.01)*
SH Rights	-0.059	-0.052	-0.057	-0.003	-0.056
	(0.19)	*(0.23)*	*(0.22)*	*(0.95)*	*(0.24)*
Mgmt control	0.021	0.042	-----	-----	-----
	(0.79)	*(0.82)*			
Mgmt control*SH Rights	-----	-0.007	-----	-----	-----
		(0.88)			
Mgmt LBH	-----	-----	0.086	0.388	-----
			(0.04)	*(0.00)*	
Mgmt LBH*SH Rights	-----	-----	-----	-0.083	-----
				(0.00)	
Mgmt 20GTAll	-----	-----	-----	-----	0.075
					(0.09)
Intercept	-2.613	-2.637	-2.716	-2.929	-2.687
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Overall R^2	0.149	0.150	0.148	0.148	0.149
Number of observations	5102	5102	5102	5102	5102

Table 3
The Relation Between Value, Cash Holdings and Managerial Control

The dependent variable is Tobin's Q computed as market value of equity plus total assets less book value of equity all divided by total assets. The rest of the variables are explained in Tables 2 and 3. Regressions include industry dummy variables based on industry groupings in Campbell (1996) and country random effects (both unreported for brevity). *p*-values are in parentheses below each coefficient.

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log (size)	-0.036	-0.039	-0.037	-0.036	-0.045	-0.042	-0.041
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
D/a	-0.453	-0.446	-0.449	-0.453	0.019	0.009	0.005
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.79)*	*(0.88)*	*(0.94)*
Capex/a	0.012	0.012	0.012	0.012	0.011	0.011	0.11
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Divdum	-------	-------	-------	-------	-0.010	-0.008	-0.010
					(0.68)	*(0.73)*	*(0.67)*
CF/a	-------	-------	-------	-------	1.080	1.056	1.057
					(0.00)	*(0.00)*	*(0.00)*
Private credit	0.097	0.091	0.097	0.098	0.066	0.072	0.073
	(0.31)	*(0.35)*	*(0.32)*	*(0.32)*	*(0.53)*	*(0.48)*	*(0.48)*
SH Rights	0.043	0.041	0.042	0.043	0.050	0.053	0.052
	(0.25)	*(0.29)*	*(0.28)*	*(0.27)*	*(0.23)*	*(0.19)*	*(0.21)*
Cash/a	-------	-------	-------	-------	1.743	1.466	1.572
					(0.00)	*(0.00)*	*(0.00)*
Mgmt control	-------	-0.110	-------	-------	-0.077	-------	-------
		(0.02)			*(0.20)*		
Mgmt LBH	-------	-------	-0.025	-------	-------	-0.065	-------
			(0.32)			*(0.05)*	
Mgmt 20GTAll	-------	-------	-------	0.001	-------	-------	-0.022
				(0.96)			*(0.51)*
Mgmt control*(Cash/a)	-------	-------	-------	-------	-0.581	-------	-------
					(0.08)		
Mgmt LBH*(Cash/a)	-------	-------	-------	-------	-------	0.233	-------
						(0.21)	
Mgmt 20GTAll*(Cash/a)	-------	-------	-------	-------	-------	-------	0.051
							(0.79)
Intercept	1.722	1.752	1.741	1.867	1.611	1.764	1.725
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Overall R^2	0.104	0.104	0.103	0.104	0.145	0.144	0.145
Number of observations	5102	5102	5102	5102	5102	5102	5102

Table 4
Full Sample Tests of the Relation Between Value, Cash Holdings, Managerial Control and Shareholder Rights

The dependent variable is Tobin's Q computed as market value of equity plus total assets less book value of equity all divided by total assets. Regressions include industry dummy variables based on industry groupings in Campbell (1996) and country random effects (both unreported for brevity). The coefficients for Log(size), D/a, Capex/a, Divdum, and CF/a are also unreported for the sake of brevity. All variables are explained in Tables 2 and 3. *p*-values are in parentheses below each coefficient.

Independent variables	(1)	(2)	(3)	(4)
Private credit	0.067	0.065	0.069	0.071
	(0.45)	*(0.52)*	*(0.45)*	*(0.49)*
SH Rights	0.001	0.036	0.023	0.035
	(0.98)	*(0.38)*	*(0.52)*	*(0.39)*
Cash/a	-0.281	1.721	1.479	1.580
	(0.34)	*(0.00)*	*(0.00)*	*(0.00)*
(Cash/a)*SH Rights	0.497	-------	-------	-------
	(0.00)			
Mgmt control	-------	-0.084	-------	-------
		(0.16)		
Mgmt control*(Cash/a)	-------	-1.756	-------	-------
		(0.00)		
Mgmt control*(Cash/a)*SH Rights	-------	0.368	-------	-------
		(0.01)		
Mgmt LBH	-------	-------	-0.069	-------
			(0.03)	
Mgmt LBH*(Cash/a)	-------	-------	-1.194	-------
			(0.00)	
Mgmt LBH*(Cash/a)*SH Rights	-------	-------	0.393	-------
			(0.00)	
Mgmt 20GTAll	-------	-------	-------	-0.025
				(0.45)
Mgmt 20GTAll *(Cash/a)	-------	-------	-------	-1.036
				(0.00)
Mgmt 20GTAll *(Cash/a)*SH Rights	-------	-------	-------	0.319
				(0.00)
Intercept	1.736	1.657	1.701	1.59
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*
Overall R^2	0.152	0.145	0.148	0.146
Number of observations	5102	5102	5102	5102

Table 5
Subsample Tests of the Relation Between Value, Cash Holdings, Managerial Control and Shareholder Rights

The dependent variable is Tobin's Q computed as market value of equity plus total assets less book value of equity all divided by total assets. Regressions are estimated on subsamples of countries with low and high shareholder rights. The "Low SH Rights" subsample contains countries that score below 4 on the LLSV(1998) Antidirector Rights measure. Regressions include industry dummy variables based on industry groupings in Campbell (1996) and country random effects (both unreported for brevity). All variables are explained in Tables 2 and 3. *p*-values are in parentheses below each coefficient.

Independent variables	Low SH Rights subsample			High SH Rights subsample		
	(1)	(2)	(3)	(4)	(5)	(6)
Log (size)	-0.014	-0.011	-0.011	-0.091	-0.089	-0.089
	(0.13)	*(0.22)*	*(0.23)*	*(0.00)*	*(0.00)*	*(0.00)*
D/a	-0.592	-0.591	-0.586	0.289	0.284	0.272
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Capex/a	0.006	0.006	0.006	0.015	0.015	0.015
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Divdum	0.037	0.038	0.038	-0.011	-0.006	-0.009
	(0.23)	*(0.22)*	*(0.22)*	*(0.77)*	*(0.85)*	*(0.79)*
CF/a	1.844	1.804	1.817	0.934	0.938	0.931
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Private credit	0.159	0.169	0.166	-0.372	-0.347	-0.341
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
SH Rights	0.027	0.030	0.039	0.061	0.063	0.068
	(0.09)	*(0.06)*	*(0.06)*	*(0.09)*	*(0.09)*	*(0.06)*
Cash/a	1.199	1.037	0.989	1.863	1.599	1.702
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Mgmt control	0.013	-------	-------	-0.269	-------	-------
	(0.85)			*(0.00)*		
Mgmt LBH	-------	0.042	-------	-------	-0.137	-------
		(0.36)			*(0.00)*	
Mgmt 20GTAll	-------	-------	0.043	-------	-------	-0.203
			(0.30)			*(0.00)*
Mgmt control*(Cash/a)	-1.345	-------	-------	0.271	-------	-------
	(0.00)			*(0.62)*		
Mgmt LBH*(Cash/a)	-------	-0.501	-------	-------	0.696	-------
		(0.10)			*(0.00)*	
Mgmt 20GTAll*(Cash/a)	-------	-------	-0.555	-------	-------	0.883
			(0.04)			*(0.00)*
Intercept	1.350	1.285	1.084	2.805	2.747	2.838
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Overall R^2	0.177	0.172	0.172	0.202	0.202	0.203
Number of observations	2029	2029	2029	3073	3073	3073

Table 6
The Relation Between Value, Cash Holdings, Dividend Payments, Managerial Control, and Shareholder Rights

The dependent variable is Tobin's Q computed as market value of equity plus total assets less book value of equity all divided by total assets. Regressions include industry dummy variables based on industry groupings in Campbell (1996) and country random effects (both unreported for brevity). The coefficients for Log(size), D/a, Capex/a, Private credit, CF/a and the intercept are also unreported for the sake of brevity. The variables are explained in Tables 2 and 3. *p*-values are in parentheses below each coefficient.

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SH Rights	0.043 *(0.19)*	0.049 *(0.25)*	0.052 *(0.20)*	0.052 *(0.24)*	0.052 *(0.21)*	0.048 *(0.20)*	0.045 *(0.33)*
Divdum	0.220 *(0.00)*	-0.035 *(0.28)*	-0.026 *(0.46)*	-0.048 *(0.11)*	-0.032 *(0.33)*	-0.032 *(0.36)*	-0.050 *(0.10)*
Cash/a	-0.414 *(0.16)*	1.751 *(0.00)*	1.472 *(0.00)*	1.583 *(0.00)*	1.708 *(0.00)*	1.465 *(0.00)*	1.584 *(0.00)*
SH Rights*(Cash/a)	0.523 *(0.00)*	-------	-------	-------	-------	-------	-------
SH Rights*Divdum	-0.068 *(0.00)*	-------	-------	-------	-------	-------	-------
Mgmt control	-------	-0.133 *(0.08)*	-------	-------	-0.108 *(0.16)*	-------	-------
Mgmt control*(Cash/a)	-------	-0.618 *(0.06)*	-------	-------	-2.246 *(0.00)*	-------	-------
Mgmt control*(Cash/a)*SH Rights	-------	-------	-------	-------	0.510 *(0.00)*	-------	-------
Mgmt control*Divdum	-------	0.095 *(0.24)*	-------	-------	0.369 *(0.00)*	-------	-------
Mgmt control*Divdum*SH Rights	-------	-------	-------	-------	-0.094 *(0.00)*	-------	-------
Mgmt LBH	-------	-------	-0.085 *(0.05)*	-------	-------	-0.066 *(0.13)*	-------
Mgmt LBH*(Cash/a)	-------	-------	0.222 *(0.23)*	-------	-------	-1.698 *(0.00)*	-------
Mgmt LBH*(Cash/a)*SH Rights	-------	-------	-------	-------	-------	0.524 *(0.00)*	-------
Mgmt LBH*Divdum	-------	-------	0.031 *(0.48)*	-------	-------	0.297 *(0.00)*	-------
Mgmt LBH*Divdum*SH Rights	-------	-------	-------	-------	-------	-0.078 *(0.00)*	-------
Mgmt 20GTAll	-------	-------	-------	-0.086 *(0.05)*	-------	-------	-0.078 *(0.08)*
Mgmt 20GTAll *(Cash/a)	-------	-------	-------	0.016 *(0.93)*	-------	-------	-1.443 *(0.00)*
Mgmt 20GTAll *(Cash/a)*SH Rights	-------	-------	-------	-------	-------	-------	*0.424* *(0.00)*
Mgmt 20GTAll *Divdum	-------	-------	-------	0.106 *(0.02)*	-------	-------	0.269 *(0.00)*
Mgmt 20GTAll *Divdum*SH Rights	-------	-------	-------	-------	-------	-------	-0.050 *(0.01)*
Overall R^2	0.154	0.145	0.144	0.145	0.147	0.150	0.147
Number of observations	5102	5102	5102	5102	5102	5102	5102