The Effects of Country and Firm-Level Governance on Cash Management

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Abstract

We examine the effects of both country and firm-level governance on cash holdings and the value of cash for a large international sample during the period 2002–2013. This study presents a natural extension of studies examining the effects of country and firm-level governance separately on both the level and the value of cash holdings. We find that strong country and strong firm-level governance both reduce the amount of cash holdings. This finding holds across countries with either high or low country governance scores. After controlling for endogeneity between firm-level governance and the firm value, we also observe that the value of cash increases with stronger country and firm–level governance. On the other hand, our results from separate regressions for high and low governance countries provide evidence that the firm-level governance increases the value of cash only in low governance countries. This finding supports the substitution argument suggesting that in countries with low level country-governance, managerial expropriation is reduced by improving the firm-level governance, which will substitute the weakness of country-level governance. Finally, consistent with the previous literature, we show that the payment of dividends is positively related to the value of cash in both high and low governance countries, but the effect is larger in low governance countries. This finding supports the fact that payment of dividends reduces the amount of cash that could be turned into private benefits. All of our results are consistent across different proxies of country level governance.

Keywords: cash holdings; value of cash; corporate governance; country governance; dividend policy; firm value

EFM Classification Codes: 150; 170: 210: 240

1. Introduction

Cash management is a widely examined subject in both the corporate finance and corporate governance literature. Under the assumption of financial market imperfections, managers strive to hold the optimal level of cash at the point where the marginal cost of holding the next dollar of cash equals its marginal benefit. The benefit of increasing cash holdings can be explained by the precautionary motive for liquidity. Holding more cash allows managers to avoid going to the market to obtain funds when the cost of those funds may be very high. The costs of increasing cash holding, in addition to the lower return on liquid assets relative to other assets, can be explained by agency theory.

There has also been a lot of discussion from both academics as well as business people about agency issues. The agency issues we refer to concern managerial discretion, the fact that mangers do not always act in the best interests of their shareholders. Managers can take a number of actions that will benefit them to the detriment of their shareholders. They can purchase perks, invest in projects that offer low expected returns to their shareholders, or they can tunnel corporate money to themselves. Good governance can reduce the amount of private benefits.

One area where you would expect these agency issues to be particularly relevant is cash management because cash can easily be turned into private benefits for managers. The purpose of our research is to explore a couple areas of cash management, namely the levels of cash holdings and the valuation of cash. In particular, we address first the influence of both country and firm-level governance on cash levels. Previous research has been far from definitive on this point as it has sometimes found no relationship between governance and cash levels where as in other cases it has argued for one or the other (country or firm) as a determinant of cash levels. Our second inquiry concerns how country and firm-level

governance affects the value of cash/firm[1]. If either or both firm and country governance mechanisms are effective in reducing the amount of cash managers hold and if managers are prone to waste cash resources then it might be expected that a dollar of cash would be valued more under strong governance and that the value of the firm would be increased relative to weak governance.

We investigate the effects of corporate and country governance proxies on the level of cash and the value of cash for a large international sample of firms from 46 countries for the period 2002–2013. We gather the sample of firms based on the availability of firm-level corporate governance scores in the ASSET4 ESG database in Worldscope. We find that cash holdings are negatively influenced both by country and firm-level governance. This is true whether we examine high or low governance countries. These results are not sensitive to how either firm-level or country-level governance is defined. Our findings of a negative relationship between both country and firm-level governance hold for the entire period of our study and actually become stronger in the latter years of our study. Our results are not consistent with the idea that governance may become less relevant as firm-level scores rise over time. The three countries with the largest number of observations in our dataset are the U.S., Japan, and the U.K. Our findings about the importance of both firm and country governance continue to hold even if we exclude observations from each of the three countries.

We also observe the impact of the financial crisis on cash holdings. The importance of both country and firm-level governance are evident even if we restrict our observations to just the period 2008-2009. In addition we find that cash holdings increased during the period 2009-2011.

Our second set of findings concerns governance and the value of cash holdings. We explicitly control for possible endogeneity between governance and firm value. We observe

[1] Ceteris paribus, an increase in the value of cash should cause an increase in the value of the firm. While a one dollar increase in cash, all things being equal, does not translate into a one dollar increase in firm value, it will translate into an increase in value.

that both country governance and firm-level governance interact positively with the effect of cash holdings on the value. The results from high and low governance countries suggest that the interaction between firm-level governance and the value of cash is significantly positive in low governance countries, but this is not true in high governance countries. We also observe that the payment of dividends adds to the value of the firm. When we examine the relationship between performance and firm governance with firm governance as the dependent variable we find that the sign of the relationship depends on the sample of firms we examine. For firms residing in high governance countries, there is a negative relationship between performance and firm governance while this relationship is positive for firms located in low governance countries.

The rest of the paper proceeds as follows. We give a brief review of the literature on agency issues, cash holdings, and cash valuation in section 2, we present our hypotheses in Section 3, and we discuss our data and methodology in Section 4. Section 5 contains our results and we present conclusions in Section 6.

2. Brief Review of the Literature

2.1. Cash Holdings with an emphasis on agency issues/governance

There are studies that show little or no effect of agency issues on cash holdings. Harford (1999) and Opler et al. (1999) observe no significant association between cash holdings and firm-level corporate governance. Using an international sample of firms, Kalcheva and Lins (2007) find only weak evidence to support the link between firms with agency issues and high levels of cash holdings[2].

[2] Mikkelson and Partch (2003) question the implicit assumption that too much cash leads to lower operating performance. They observe that the operating performance of firms that previously held a lot of cash was the same or better than firms matched by size and industry that held less cash. One benefit of having a lot of cash is it reduces the underinvestment problem.

On the other hand, research has sometimes found a significant link between agency problems and cash holdings. Using an international samples of firms, Dittmar et al. (2003) show that firms located in low shareholder protection countries hold up to twice the amount of cash than firms residing in high shareholder protection countries. The authors argue that shareholders in low protection countries cannot force executives to dispense the extra cash. Nikolov and Whited (2014) also find support for the positive association between agency issues and cash holdings. Using samples of both private and public firms, Gao et al. (2013) show the importance of agency issues on cash levels. On the other hand, Harford et al. (2008) actually find for US firms that poor governance firms hold less cash than firms with better firm governance. The poorly governed US firms tend to spend excess cash on capital expenditures and acquisitions rather than retain it.

Some studies examine the effects of both country and firm-level governance on cash holdings. Ammann et al. (2011) find that it is firm–level governance and not country-level governance that is important in explaining the negative relationship between governance and cash holdings. On the other hand, Doidge et al. (2007) stress the importance of country characteristics. They show that country characteristics account for a large percentage of firm-level corporate governance variation.

In summary, the evidence is far from conclusive as to the importance of agency issues on cash balances. Furthermore, even if we accept the view that agency issues are a primary driver determining cash holdings, is the driver primarily country driven or firm-level driven? There is support for both views.

2.2. Valuation of cash and governance

Dittmar and Mahrt-Smith (2007) show that better firm governance (measured by anti-takeover defenses and shareholder monitoring) has a positive effect on the value of excess

cash and the value of total cash. The value of cash is approximately double in well governed firms as compared to poorer governed firms (see also Pinkowitz et al., 2006). Dittmar and Mahrt-Smith also find that poorly governed firms spend cash more quickly which lowers operating performance. They also conjecture that poorly governed firms may invest in more low return projects and also may be less vigilant in regards to controlling costs. Gompers et al. (2003), Cremers and Nair (2005) and Durnev and Kim (2005) also find a positive relationship between governance and firm value[3].

Chhaochharia and Laeven (2009) analyze the relationship between governance and the valuation of cash. They look at firm level corporate governance and subtract the corporate governance practices that all firms do in a country to get measures of firm and country-level corporate governance. They observe that it is firms' improvements over country norms that matter for cash valuation, and not country norms. Ammann et al. (2011) also find a positive relationship between firm-level governance and firm valuation.

A number of studies have shown that the payment of dividends increases the value of cash, especially in countries with low investor protection (e.g., Pinkowitz et al., 2006). Paying a dividend may suggest that firms are mindful of not wasting excess cash and also reduces the amount of cash that could be used for private benefits.

In summary, research shows that governance affects the value of cash and hence the value of the firm. Whether it is country governance, firm governance or both that influence valuation is still unclear.

[3] A number of studies have examined a related topic, the effect of corporate social responsibility (CSR) on the value of cash holdings and the value of the firm. Arouri and Pijourlet (2015) find that CSR increases the value of cash. This finding is consistent with the view that CSR resolves problems arising from conflicts of interests between managers and shareholders. This idea basically supports the view that better corporate governance increases the value of cash by preventing managers from inefficient use of a firm's cash holdings. However, this study is not able to show that CSR affects cash holdings itself. Jo and Harjoto (2011) also show a positive link between CSR and both internal and external corporate governance mechanisms which in turn increase the firm value.

3. Hypotheses

Our first hypothesis is that both country and firm governance variables should negatively affect cash holdings. Managers who are not maximizing shareholder wealth should have a tendency to prefer more cash holdings to less cash holdings. Cash is probably the easiest asset to convert into private benefits (Myers and Rajan, 1998) and having more cash available makes it easier to convert it into private benefits when the time is right. In other words, having excess cash gives these managers the flexibility to spend money on perks or low return projects when they wish. Furthermore the more cash that is available, the less often managers need to go to the financial markets and hence they can avoid the required scrutiny to obtain cash.

Good governance should reduce average cash holdings. Good governance will encourage managers to distribute excess cash to stockholders via dividends. Managers in these firms will not want to have too much cash earning relatively low returns when it can be earning higher expected returns in more productive assets.

Governance appears to be multidimensional and appears to be a function of both the country environment (laws protecting minority shareholders and the enforcement of those laws) as well as the actions employed by the firm. The total effect of the governance of a firm should be a function of both its country and firm governance. For example, poor firm governance will subtract from good country governance and vice versa. Our first hypothesis follows:

Hypothesis 1: Both country and firm-level governance should negatively affect corporate cash holdings.

Our second hypothesis involves the determinants of the value of cash and hence the value of the firm. We believe that both good firm-level and country-level governance will impact positively the value of cash and the value of the firm.

Good governance should reduce any misallocation of funds. Not only will funds be more likely to be returned to stockholders but the chances that funds will be used for perks or for other private benefits should be greatly reduced under good governance. Furthermore good governance should reduce the cost of funds as monitoring and auditing costs should be reduced. Additionally good governance should result in more funds being available as lenders and shareholders should believe that it is more likely they will be repaid.

Good governance does come with added costs. There are costs (both direct and indirect) to implement better governance (Aggarwal et al., 2009, Chhaochharia and Laeven, 2009 and Bruno and Claessens, 2010). There are costs associated with increased disclosure, for example. Better governance should also reduce the private benefits to the controlling shareholders. We believe, however, that in general, these added costs should be relatively little compared to the benefits.

Like the previous hypothesis, we think that good governance is composed of both country and firm-level components. Our second hypothesis follows:

Hypothesis 2: Both country and firm-level governance should positively interact with the value of cash.

We also investigate two other issues. First we examine the effect of the payment of dividends on the value of cash. There does not appear to be much controversy about the positive effect of dividends on cash valuation. We also look at different time periods to see if the effect of agency issues are fairly constant over time.

The role of stronger firm-level governance in preventing the use of private benefits would be also evaluated based on the different levels of country governance. By considering the fact that country level law and regulations dictate the firm level governance, Aggarwal et al. (2009) show that country-level investor protection plays crucial role in determining the intensity of firm-level governance. This would also suggest that minority shareholders are

already well protected in countries with better investor protection. Therefore, substitution argument suggest that managers have less ability to pursue with their private benefits when country-level governance is high and cross-sectional differences in firm-level governance do not support the view that firms with stronger firm-level governance hold lower level of cash and/or higher value of cash. Similarly, in countries with low level country-governance, managerial expropriation is reduced by improving the firm-level governance, which will substitute the weakness of country-level governance. When the substitution argument is failed to be supported, we should observe the same effect of both country and firm-level governance on cash holdings or the value of cash regardless of firms operating in high or low country-level countries. Thus, our third hypothesis follows:

Hypothesis 3a: Firm-level governance will negatively affect corporate cash holdings only in countries with low governance.

Hypothesis 3b: Firm-level governance will positively interact with the value of cash only in countries with low governance.

4. Data and Models

4.1. Data

We investigate the effects of both firm-level and country-level governance variables on cash management for a large international sample of firms for the period 2002–2013. The firm-level accounting and financial data are collected from the Worldscope database provided by Thomson Reuters. Utilities and financial firms are excluded from the analysis due to possible regulatory influences. We winsorize our financial variables at the 1% and 99% levels. Our final sample consists of 21,866 firm-year observations.

Our first two measures of country governance are obtained from the World Bank. The first COUNTRY_GVSCORE is a broad measure and encompasses six dimensions: (1) voice and accountability, (2) political stability and absence of violence, (3) government effectiveness, (4) regulatory quality, (5) rule of law, and (6) control of corruption (Kaufmann et al., 2009; 6). We define the score for a particular country for a specific year as the average score of these six dimensions. The second measure of country governance we employ is the rule of law (RULE OF LAW) and this is one of the six dimensions of the World Bank measure (COUNTRY_GVSCORE). The third measure for country governance is based on the average firm governance score for a particular year for a specific country. We discuss this variable in more detail below.

Our measures for country governance are meant to be diverse. The first uses a broad number of country attributes to assess governance. The second focuses on one important criteria (adoption of the rule of law) to gauge country governance. The last measure of country governance uses the average firm level corporate governance score in a country.

Two firm governance variables are employed in our analysis. The first is FIRM_GVSCORE, a variable from the ASSET4 Environmental, Social and Corporate Governance (ESG) database, which carries historical data for several key performance indicators on four pillars: economy, environment, social, and corporate governance. FIRM_GVSCORE is a corporate governance score for each firm for a particular year based on five categories: (1) Functions of the Board of Directors, (2) Structure of the Board of Directors, (3) Compensation Policy of the Board of Directors, (4) Company Vision and Strategy, and (5) Shareholder Rights. The second firm governance variable is AdjFIRM_GVSCORE which is simply the difference between the firm governance score for a particular year and the average governance score of all the firms in a country for a particular year (CountryMean_FIRM_GVSCORE).

4.2. Models

4.2.1. Cash Holdings

Our cash holdings equation is as follows:

$$CASH_{it} = b_0 + b_1 SALES\_GROWTH_{it} + b_2 SIZE_{it} + b_3 NWC_{it} + b_4 R\&D_{it} + b_5 LEVERAGE_{it} + b_6 CASH\_FLOW_{it} + b_7 CAPEXP_{it} + b_8 PAYER\_DUMMY_{it} + b_9 ACQUISTIONS_{it} + b_{10} COUNTRY\_GVSCORE_{jt} + b_{11} FIRM\_GVSCORE_{it} + \sum_t + \kappa_j + e_{it} \quad (1)$$

Where $CASH_{it}$ is the ratio of cash and short-term investments to the book value of total assets for firm i at time t, $SALES\_GROWTH_{it}$ is the percentage change in sales for firm i from time t-1 to time t, $SIZE_{it}$ is the natural logarithm of the book value of assets in US dollars for firm i at time t, NWC_{it} is net working capital and is the ratio of current assets minus cash minus current liabilities to the book value of total assets for firm i at time t, $R\&D_{it}$ is the ratio of research and development expenses to the book value of total assets for firm i for time t, $LEVERAGE_{it}$ is the ratio of the sum of long-term and short-term debt to the book value of total assets for firm i at time t, $CASH\_FLOW_{it}$ is cash flow and equals the ratio of the sum of net income and depreciation to the book value of total assets for firm i at time t[4], $CAPEXP_{it}$ is the ratio of capital expenditures to the book value of total assets for firm i at time t, $PAYER\_DUMMY_{it}$ is a dummy variable that equals 1 if firm i pays a dividend at time t, $ACQUISITIONS_{it}$ is the ratio of net acquisitions to the book value of total assets for firm i at time t, $COUNTRY\_GVSCORE_{jt}$ is a measure of country governance for country j at time t, $FIRM\_GVSCORE_{it}$ is a measure of firm governance for firm i at time t, $\sum_t$ is a set of yearly dummies, and κ_j is a set of industry dummies. Standard errors are clustered at the firm-level.

In equation 1, we control for investment opportunities (sales growth), size, net working capital (a substitute for cash), R&D, leverage, cash flow, capital expenditures, whether a firm pays a dividend, and acquisitions. Sales growth, R&D (due to precautionary

[4] If the value for R&D is missing, the value is set equal to zero.

reasons), and cash flow should have a positive influence on cash holdings and the other variables should negatively affect cash holdings. Our primary coefficients of interest are b_{10} and b_{11}.

4.2.2. Governance and Firm Valuation

We use a two equation system to examine the effect of governance (country and firm) on firm valuation. The first equation is the standard equation employed by Fama and French (1998) and used, for example, by Pinkowitz et al. (2006) for firm valuation with a couple of modifications necessary to test our hypotheses and the second equation explains the determinants of firm governance[5,6]. We use a two equation system because the direction of causation between firm governance and firm performance is not clear (Claessens and Yurtoglu, 2013). We have previously hypothesized that good governance should positively influence firm valuation. It also possible to argue that good performance should lead to greater demand for capital which leads to better governance. The greater the need for capital the more pressure will occur to lower the cost of these funds and good governance can lower the cost of external capital. The two equation system follows:

$$\begin{aligned}
FIRM_VALUE_{it} &= b_0 + b_1\, EARNINGS_{it} + b_2\, dEARNINGS_{it} + b_3\, dEARNINGS_{it+1} \\
&+ b_4\, dNET_ASSET_{it} + b_5\, dNET_ASSET_{it+1} + b_6\, R\&D_{it} + b_7\, dR\&D_{it} + b_8\, dR\&D_{it+1} \\
&+ b_9\, INTEREST_{it} + b_{10}\, dINTEREST_{it} + b_{11}\, dINTEREST_{it+1} + b_{12}\, DIVIDEND_{it} \\
&+ b_{13}\, dDIVIDEND_{it} + b_{14}\, dDIVIDEND_{it+1} + b_{15}\, dFIRM_VALUE_{it+1} + b_{16}\, CASH_{it} \\
&+ b_{17}\, COUNTRY_GVSCORE_{it} + b_{18}\, FIRM_GVSCORE_{it} + b_{19}\, CASH_{it} * \\
&COUNTRY_GVSCORE_{it} + b_{20}\, CASH_{it} * FIRM_GVSCORE_{it} + \sum_t + \kappa_j + e_{it} \qquad (2)
\end{aligned}$$

[5] See Aggarwal et al. (2009) for a comparison of governance practices between U.S. and foreign firms.
[6] Relatively few papers model firm governance. Durnev and Kim (2005) is an exception.

$$FIRM\_GVSCORE_{it} = b_0 + b_1\, Size_{it} + b_3\, LEVERAGE_{it} + b_4\, CASH\_FLOW_{it}$$

$$+ b_5\, EXTERNAL\_FINANCE_{it} + b_6\, FIRM\_VALUE_{it} + \sum_t + \text{Ƙ}_j + e_{it} \quad (3)$$

Where $FIRM\_VALUE_{it}$ is defined as the sum of the book value of total assets plus the market value of common equity minus book value of common equity for firm i at time t, $EARNINGS_{it}$ is earnings before interest and extraordinary items (after taxes and depreciation) for firm i at time t, NET_ASSET_{it} is net assets (total assets minus cash and equivalents) for firm i at time t[7], R&D is research and development expenses and if R&D is missing it is set equal to zero, $INTEREST_{it}$ is interest expense for firm i at time t, and $DIVIDEND_{it}$ is dividends for firm i at time t. In equation 2, dX_t is the change in variable X from time t-1 to time t and dX_{t+1} is the change in variable X from time t to time t+1. All variables in equation 2 are scaled by book assets to control for heteroskedasticity. In equation 3 $EXTERNAL\_FINANCE_{it}$ is the need for external finance for firm i at time t and it is difference between the growth in assets and the growth in return on equity. See Table 1 for definitions of all variables.

We estimate the system of equations using 3SLS to take advantage of the correlation in the error terms to arrive at more efficient estimates. Both firm value and firm governance are designated as endogenous variables. A predictive equation is used for firm value in equation 3 using all the exogenous variables in the two equations and in cases where firm governance is used in equation 2 a first stage regression is used to develop estimates for firm governance in equation 2.

[7] Since we are testing hypotheses about the value of cash and the value of the firm, we subdivide assets into cash and net assets (total assets minus cash and its equivalents).

5. Results

5.1. Descriptive Statistics

Table 2 provides descriptive statistics for our key variables both overall (Panel A) as well by country (Panel B). Correlations between the variables are presented in Panel C.

Panel A indicates that the mean (median) firm cash holdings in our sample is .138 (.097). Means for Switzerland and Qatar[8] are over .2 and firms in Belgium, Chile, Colombia, Czech Republic, Finland, Hungary, Morocco, New Zealand, Portugal, and Sweden have means all under .1. In results not reported, the mean cash holdings for firms in our sample are smaller than the mean (.187) for all the firms in the *Worldscope* database for the years 2002-13 (our sample period). In fact in each of the years of our sample period, the mean cash holdings of the firms in our sample are smaller than the mean cash holdings of all the firms in the *Worldscope* database. Having a corporate governance rating is associated with lower cash holdings.

In terms of country governance statistics, the overall governance statistic (COUNTRY_GVSCORE) from the World Bank range from -.543 (China) to 1.879 (Finland) with a mean of 1.249. The Rule of Law country statistics range from -.630 (Peru) to 1.944 (Finland) with a mean of 1.439. Firm governance scores (FIRM_GVSCORE) vary from a low of .038 (Qatar) to a high of .750 (Canada) with a mean of .546. Country governance scores are positively correlated, as expected. COUNTRY_GVSCORE has a .97 correlation coefficient with the RULE OF LAW (a component of the overall governance score) and the correlation coefficient of COUNTRY_GVSCORE with CountryMean_FIRM_GVSCORE is .33. Also firm governance scores are positively correlated with country governance scores. FIRM_GVSCORE has a positive correlation of .27 with COUNTRY_GVSCORE and a .36 positive correlation with the RULE OF LAW.

[8] It should be pointed out that that some countries have a very small sample size and hence statistics from these countries should be viewed cautiously.

We also examined whether both firm and country governance scores have improved over time. In unreported results[9], we observe that country level scores have generally decreased over time while firm governance scores have improved from 2002 to 2013.

In terms of correlations, all of our variables in our cash holdings equation have a significant correlation (at the one percent level) with cash. SALES_GROWTH and R&D are positively related and the rest of the variables are negatively related including all of the firm and country governance variables with cash. The governance variables are generally significantly positively correlated with FIRM_VALUE except for COUNTRY_GVSCORE (no significant correlation) and the AdjFIRM_GVSCORE (negative correlation). The correlation between the external finance variable and FIRM_GVSCORE is strongly positive.

5.2. Regression Analysis

5.2.1. Cash Holdings

Table 3 presents our findings for our cash holdings equation. We examine three sets of governance variables. Each set has one country governance variable and one firm governance variable. The first set includes our overall World Bank country governance variable (COUNTRY_GVSCORE) and our firm governance variable (FIRM_GVSCORE). The second set uses as the country governance variable the RULE OF LAW and FIRM_GVSCORE. Finally the third set uses as the country governance variable the average firm governance score for that country for a particular year (CountryMean_FIRM_GVSCORE) and as the firm governance variable AdjFIRM_GVSCORE, the difference between the firm governance score and the average firm governance score for a particular country and year.

[9] We looked at all the firms in our sample regardless of the number of years a particular firm was in the sample. We also studied the subset of firms that had observations for all the years of our sample.

Each set contains three regression results – (1) the only governance variable is a country one, (2) only a firm governance variable is used, and finally (3) both a firm and country governance variables are employed. Our approach allows us to see whether firm and country governance variables individually impact cash holdings and whether one of these governance variables appears to explain cash holdings more than the other variable. To save space, we present in Panels B and C only the results for the governance variables. The coefficients on the control variables in Panels B and C are very similar to those in Panel A.

Finally in each panel, we present our results for three samples (all, high governance and low governance countries). To determine high and low governance countries, we add for each year the scores for the overall country governance (COUNTRY_GVSCORE) and the average firm governance score (CountryMean_FIRM_GVSCORE). The sample was spilt evenly into high and low governance countries using the median country value.[10] We use this method because we wanted to include both a country as well as firm component in the selection of high and low governance countries. Countries can be classified as high governance in one year and low governance the next and vice versa. We are particularly interested in whether governance (country and firm level) plays a similar role in each sample.

The findings in Table 3 indicate that corporate governance whether defined at the country level or firm level has a negative influence on the amount of cash holdings. In all of our OLS regressions, the coefficients on the corporate governance variables are significantly negative with one exception. In Panel C, the coefficients for the firm level corporate governance variable, AdjFIRM_GVSCORE are negative but not significant for sub-sample of low governance countries. Our OLS results suggest country governance and firm level corporate governance both influence cash holdings. Our findings hold whether we concentrate at looking at firms from high governance countries or from low governance countries. Our

[10] While the number of countries is the same for each sample, the number of observations is different since high governance countries have on average more firm observations.

results indicate that in environments of combined good firm and country-level governance, increases in either firm or country-level governance will result in still lower average cash holdings. Likewise in environments of poor governance, increases in either firm or country-level governance will cause cash holdings to be smaller. This findings fail to support the argument that firm and country-level governance substitute each other. Our findings also hold using alternative definitions for country and firm governance. Good corporate governance is associated with lower levels of cash holdings. Presumably good corporate governance puts a check on management from holding too much cash. In summary, our findings are consistent with Hypothesis 1.

It is possible that our findings are by driven by firms from a particular country. As a result, we ran three more sets of regressions, excluding firms first from the U.S., then excluding only companies from Japan, and finally excluding only firms from the U.K. (These are the countries with the most number of observations). Our results concerning the importance of both country and firm-level governance did not change after excluding firms from these countries.

In terms of economic impact, using the coefficients from equations 1 and 2 from the all observation sample in Panel A of Table 3, a one standard deviation increase in country governance (.4559) is associated with a decrease in cash holdings of .00866 (-.019 x .4559) which represents a decrease of about 6% of the mean value of cash (.1383). The corresponding numbers for firm governance are a decrease of .00839 (-.028 x .2997) which also equates to a decrease of about 6%.

We also examined whether the relationship between the governance and cash holdings is fairly constant over the entire period of our study for all of our samples. As a result we divided the data into two equal time periods (2002-2007 and 2008-2013)[11]. In unreported

[11] While the number of years is the same in both periods, the number of observations is much larger in the second (later) period.

results, we find that the relationships are always negative between cash holdings and the governance variables (both firm and country) in both time periods. The relationships are generally insignificant in the first time period but with one exception are always significant in the second (later) period. Our findings are consistent with the idea that the negative governance/cash holdings relationship is fairly constant over the entire period and is stronger in the later years of our study. The fact that corporate governance scores are increasing over time has not diminished the negative relationship between governance (country as well as firm) and cash holdings. Our results are inconsistent with the idea that since firm governance scores are generally increasing this somehow makes them less relevant in influencing cash levels.

We also checked to see the impact of the financial crisis on our findings. In unreported findings, we observe that the importance of both country and firm-level governance remains if we limit the observations to just the years 2008-2009. In addition, we observe form Table 3 that yearly dummies for 2009, 2010, and 2011 all show significant positive coefficients suggesting that firms added to cash balances in those years.

The control variables generally behave as expected in the three samples. R&D and cash flow have a positive effect on the amount of cash holdings. Capital expenditures, dividend payments, leverage, net working capital, and acquisitions have a negative effect. Sales growth, as expected, has a positive effect on cash holdings though the coefficients are generally not significant in low governance countries. Size has a significant negative effect in high governance countries but an insignificant effect in low governance countries.

5.2.2. Valuation Effects

We next examine the effect of governance on firm valuation. In particular we ask whether both types of governance affect the value of the firm and whether the payment of dividends increases the value of the firm.

The structure of Table 4 is similar to Table 3. We have three panels that correspond to the three combinations of governance variables mentioned previously. For each sample, we report four equations, all employing the basic Fama and French (1998) methodology. In the first equation we add two variables to the Fama and French equation – (1) the country governance variable and (2) the interactive variable between country governance and cash holdings. The second equation replaces the country governance variable with a firm governance variable. The third equation employs both firm and country governance variables along with their respective interactive variables. The fourth equation simply adds one variable to the Fama and French method, namely the interactive variable between cash holdings and dividend payments.

In each panel we report the 3SLS results for our three samples (all, high, and low governance). In our first equation (FIRM_VALUE is the dependent variable) of the 3SLS equations we focus on the interactive variables between cash holdings and the governance variables and between cash holdings and dividends. For the second equation (firm governance is the dependent variable) we investigate in particular the impact of external finance and firm value on firm governance.

We first examine the firm value equation. Our first result is that with two exceptions, the interactive variable between cash holdings and country governance is always significantly positive. In other words, good country governance contributes significantly to the value of firm. One of two exceptions appear to be in Panels A2 for the two equation where both interactions for country and firm-level governance are included for high governance countries

and C2. The exception in Panel C2 is for low governance countries and occurs when country governance is defined as the average firm governance score and firm governance is defined as deviation from the average firm governance score. Overall, the results suggest that country governance has an important influence of cash valuation.

Our second result is that the interactive variable between firm governance and cash holdings is also significantly positive when we run our regressions for all sample. This finding supports Hypothesis 2. There is evidence that firm governance matters in low governance countries, especially in Panels A2 and B2, but not in high governance countries. This finding supports Hypothesis 3b for the substitution argument.

When we repeat the analysis excluding U.S., Japanese, and U.K. firms respectively, we find the same general pattern, namely that country governance seems to matter more than firm-level governance.

The yearly dummies in Table 4 suggest that there was a significant drop in the value of the firm in 2008 only as a result of the financial crisis. The yearly dummies for 2009 and 2010 are not significant.

Our third result is that in all of our samples the value of the firm is increased when firms pay dividends. The interactive variable CASH*DIVIDEND is always significantly positive. Looking at Panel A1 in Table 4 (equation 4) shows that the coefficient for dividends is 13.728 and the coefficient on the interactive variable (CASH*DIVIDEND) is 2.603. Using the mean value of cash (.1383), a one standard deviation increase in dividends (.0309) should increase the value of the firm by .463 [14.648 x .0309 + (2.366 x .0309 x .1383)]. The increase in value of .463 represents about a 24% increase (.463/1.935) relative to the mean value of FIRM_VALUE. This is a economically significant increase.

Turning to the corporate governance equation, our main result is that the relationship between firm value and firm governance depends on the sample of firms used. For firms in

high governance countries, the relationship between FIRM_VALUE and FIRM_GVSCORE is negative while it is positive for firms in low governance countries. In high governance countries, firms with high value may not feel the need to increase governance since their value is already high and may worry that further efforts to improve governance may have a negative effect on value. On the other hand, in low governance countries firms with high value may invest in more governance because they believe high governance may lead to additional sources of funds that may be critical for the firm's long-term success.

There is some evidence that the greater the need for external funding the greater the level of firm governance (see Panels A and B). The results in Panel C are, however, inconsistent with this interpretation. It appears that the definitions of country and firm governance influence the relationship between the need for external financing and corporate governance.

6. Conclusions

Our paper investigates the impact of agency costs and governance on cash management. Specifically our paper examines the role of both country and firm-level governance in (1) influencing cash levels and (2) the value of cash. Previous research have often produced conflicting results. We use a variety of definitions for country and firm-level governance, we employ different samples, and we control for possible endogeneity between firm governance and firm value.

We find that both country and firm-level governance negatively affect cash holdings. It is not just one form of governance that matters but both are important. Good country (firm) governance can be more effective when it is combined with good firm-level (country) governance. Presumably good governance "forces" managers to act more in shareholders' interests and one of the ways managers can work for shareholders' interest is to limit the

amount of money they have at their control that could potentially be used for private benefits.

We also observe that country governance influences the value of cash more than firm-level governance does. Country level governance almost always significantly increases the value of the cash while the effects of firm-level governance is weaker. Like other researchers we observe that the payment of dividends increases the value of the firm. Paying dividends reduces the amount of money that managers could possibly turn into private benefits.

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Table 1: Definitions of variables

Variables	Definitions
CASH	The ratio of cash and short-term investments to book value of total assets
FIRM_VALUE	The ratio of (Book value of total assets + market value of common equity − book value of common equity) to book value of total assets
SALES_GROWTH	Percentage change in sales from t-1 to t.
SIZE	The natural logarithm of book value of assets in USD
NET_ASSETS	Total assets – cash and short investments
NWC	Net Working Capital, which is the ratio of [(current assets – cash) – current liabilities] to book value of total assets
R&D	The ratio of Research & Development Expenditures to book value of total assets
LEVERAGE	The ratio of (book value of total long-term debt + short-term debt) to book value of total assets
CASH_FLOW	The ratio of (net income + depreciation) to book value of total assets
CAPEXP	The ratio of capital expenditures to book value of total assets
DIVIDEND	The amount of cash dividends paid
PAYER_DUMMY	Dummy variable taking the value of 1 if common dividends are paid, otherwise 0
ACQUISITIONS	The ratio of net assets from acquisitions to book value of total assets
EXTERNAL_FINANCE	The difference between growth in assets and growth in return on equity
EARNINGS	Net income excluding interest, extraordinary items and deferred income and taxes.
INTEREST	The amount of annual interest expense
COUNTRY_GVSCORE	Average of six World Bank Governance Indicators (WGI): Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption
RULE OF LAW	One of the six WGI indicators and refers to the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence
FIRM_CGVSCORE	Firm-level corporate governance scores from ASSET4
CountryMean_FIRM_ GVSCORE	Average score of firm-level corporate governance scores by country and year
AdjFIRM_GVSCORE	The difference of firm-level corporate governance scores from country-year average

Table 2: Sample statistics

Panel A: Descriptive statistics

Variables	N	Mean	Median	StdDev.
CASH	21866	0.1383	0.0965	0.1346
FIRM_VALUE	21813	1.9135	1.4742	1.7728
SALES_GROWTH	21544	0.1116	0.0629	0.4207
SIZE	21862	15.3428	15.2922	1.4313
NWC	21762	0.0061	0.0028	0.1481
R&D	21866	0.0192	0.0000	0.0416
LEVERAGE	21824	0.3490	0.3383	0.2421
CASH_FLOW	21830	0.0885	0.0928	0.0963
CAPEXP	21801	0.0578	0.0410	0.0576
PAYER_DUMMY	21719	0.7368	1.0000	0.4404
ACQUISITIONS	20071	0.0209	0.0008	0.0480
EXTERNAL_FINANCE	21829	-0.1288	-0.0822	0.7227
COUNTRY_GVSCORE	21866	1.2486	1.2836	0.4559
RULE OF LAW	21866	1.4392	1.5802	0.5060
FIRM_GVSCORE	21866	0.5462	0.6362	0.2997
CountryMean_FIRM_GVSCORE	21866	0.5462	0.6595	0.2419
AdjFIRM_GVSCORE	21866	0.0000	0.0070	0.1770
(EARNINGS)t	21118	0.0743	0.0786	0.1204
d(EARNINGS)t	20799	0.0055	0.0082	0.1135
d(EARNINGS)t+1	18347	0.0122	0.0082	0.1159
d(NET_ASSETS)t	21833	0.0457	0.0391	0.1904
d(NET_ASSETS)t+1	19241	0.0900	0.0396	0.3111
(R&D)t	21866	0.0191	0.0000	0.0404
d(R&D)t	21835	-0.0001	0.0000	0.0117
d(R&D)t+1	19241	-0.0001	0.0000	0.0114
(INTEREST)t	21604	0.0127	0.0100	0.0130
d(INTEREST)t	21462	0.0003	0.0000	0.0070
d(INTEREST)t+1	18924	0.0008	0.0000	0.0081
(DIVIDEND)t	21743	0.0225	0.0125	0.0309
d(DIVIDEND)t	21615	0.0019	0.0004	0.0148
d(DIVIDEND)t+1	19046	0.0023	0.0005	0.0161
d(FIRM-VALUE)t+1	19134	0.1721	0.0754	1.0257

This table reports the mean, median and standard deviation of variables (Panel A), mean and median values of selected firm-level variables and means of country level variables by country (Panel B), and correlation coefficients (Panel C). The sample period is from 2002 to 2013. Definitions of the variables are given in Table 1. * denotes statistical significance at 1% level.

Panel B: Sample countries and selected variables

	CASH			COUNTRY_ GVSCORE	RULE OF LAW	FIRM_ GVSCORE
	N	Mean	Median	Mean	Mean	Mean
Australia	1342	0.158	0.082	1.600	1.749	0.620
Austria	122	0.142	0.121	1.601	1.861	0.329
Belgium	187	0.091	0.063	1.325	1.332	0.479
Brazil	233	0.155	0.134	0.047	-0.110	0.258
Canada	1548	0.106	0.057	1.608	1.768	0.750
Chile	56	0.085	0.066	1.180	1.326	0.082
China	278	0.190	0.156	-0.543	-0.402	0.237
Colombia	12	0.096	0.050	-0.313	-0.368	0.314
Czech Republic	5	0.050	0.052	0.895	0.956	0.167
Denmark	206	0.119	0.061	1.843	1.924	0.344
Finland	244	0.093	0.064	1.879	1.944	0.568
France	747	0.118	0.095	1.220	1.424	0.510
Germany	634	0.116	0.093	1.463	1.658	0.301
Greece	142	0.123	0.085	0.568	0.704	0.165
Hungary	15	0.095	0.074	0.695	0.691	0.489
India	251	0.133	0.098	-0.317	-0.066	0.290
Indonesia	91	0.163	0.125	-0.423	-0.601	0.227
Ireland	143	0.182	0.113	1.491	1.685	0.624
Israel	60	0.146	0.123	0.578	0.908	0.381
Italy	258	0.103	0.087	0.587	0.444	0.420
Japan	3175	0.153	0.120	1.213	1.315	0.119
Kuwait	6	0.112	0.115	0.100	0.526	0.135
Luxembourg	44	0.137	0.127	1.695	1.791	0.416
Malaysia	115	0.175	0.164	0.323	0.500	0.421
Mexico	113	0.112	0.096	-0.157	-0.582	0.180
Morocco	6	0.031	0.024	-0.328	-0.218	0.081
Netherlands	294	0.108	0.074	1.675	1.776	0.646
New Zealand	65	0.042	0.033	1.767	1.863	0.597
Norway	166	0.141	0.088	1.707	1.927	0.562
Peru	9	0.158	0.140	-0.253	-0.630	0.331
Philippines	30	0.149	0.151	-0.429	-0.525	0.193
Poland	39	0.117	0.099	0.798	0.706	0.231
Portugal	77	0.087	0.071	1.024	1.060	0.487
Qatar	6	0.228	0.214	0.683	0.944	0.038
Saudi Arabia	24	0.166	0.169	-0.332	0.205	0.059
Singapore	243	0.167	0.154	1.502	1.693	0.476
South Africa	280	0.109	0.088	0.229	0.105	0.616
Spain	286	0.116	0.082	0.940	1.129	0.430
Sri Lanka	4	0.135	0.141	-0.347	-0.132	0.322
Sweden	419	0.093	0.059	1.768	1.901	0.509
Switzerland	484	0.213	0.178	1.730	1.820	0.449
Thailand	65	0.144	0.099	-0.299	-0.178	0.453
Turkey	69	0.173	0.170	-0.055	0.081	0.229
United Arab Emir	11	0.150	0.154	0.506	0.495	0.341
United Kingdom	2421	0.110	0.077	1.416	1.676	0.717
United States	6841	0.152	0.101	1.262	1.568	0.743
Total	21866	0.138	0.096	1.249	1.439	0.546

Panel C: Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
CASH HOLDING (1)	1																
FIRM_ VALUE (2)	0.302*	1															
SALES_ GROWTH (3)	0.049*	0.096*	1														
SIZE (4)	-0.247*	-0.303*	-0.089*	1													
NWC (5)	-0.118*	-0.058*	-0.029*	-0.097*	1												
R&D (6)	0.355*	0.166*	-0.006	-0.064*	0.028*	1											
LEVERAGE (7)	-0.347*	-0.167*	-0.053*	0.292*	-0.258*	-0.166*	1										
CASH_FLOW (8)	-0.037*	0.197*	0.041*	0.047*	0.085*	-0.077*	-0.161*	1									
CAPEXP (9)	-0.112*	0.048*	0.114*	-0.101*	-0.121*	-0.142*	-0.012	0.091*	1								
PAYER_ DUMMY (10)	-0.191*	-0.063*	-0.086*	0.246*	0.059*	-0.135*	0.021*	0.247*	-0.100*	1							
ACQUISITIONS (11)	-0.086*	0.007	0.102*	-0.025*	-0.016	0.045*	0.045*	0.012	-0.106*	-0.020*	1						
EXTERNAL_ FINANCE (12)	-0.014	0.039*	0.161*	-0.105*	-0.056*	-0.012	0.058*	-0.180*	0.037*	-0.213*	0.237*	1					
COUNTRY_ GVSCORE (13)	-0.034*	0.004	-0.007	-0.134*	0.068*	0.075*	-0.031*	-0.067*	-0.002	-0.051*	0.078*	0.308*	1				
RULE OF LAW (14)	-0.023*	0.018*	-0.007	-0.114*	0.070*	0.090*	-0.022*	-0.053*	-0.016	-0.092*	0.090*	0.352*	0.966*	1			
FIRM_ GVSCORE (15)	-0.074*	0.042*	-0.005	0.067*	0.009	0.029*	0.044*	0.051*	0.016	-0.167*	0.095*	0.379*	0.265*	0.359*	1		
CountryMean FIRM_GVSCORE (16)	-0.033*	0.105*	0.045*	-0.126*	0.012	0.002	0.009	0.032*	0.041*	-0.274*	0.127*	0.502*	0.329*	0.445*	0.807*	1	
AdjFIRM_ GVSCORE (17)	-0.081*	-0.073*	-0.071*	0.286*	-0.001	0.046*	0.061*	0.043*	-0.029*	0.091*	-0.011	-0.046*	-0.000	-0.000	0.590*	0	1

Table 3: Firm and country-level governance and cash holdings

Panel A: The average of six World Bank Governance Indicators (COUNTRY_GVSCORE)

	ALL OBSERVATIONS			HIGH GOVERNANCE COUNTRIES			LOW GOVERNANCE COUNTRIES		
SALES_GROWTH	0.011***	0.011***	0.010***	0.009**	0.009**	0.008**	0.009	0.010*	0.008
	[0.003]	[0.003]	[0.003]	[0.004]	[0.004]	[0.004]	[0.006]	[0.006]	[0.006]
RSIZE	-0.011***	-0.010***	-0.011***	-0.015***	-0.011***	-0.013***	-0.004*	-0.003	-0.003
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.003]	[0.003]	[0.003]
NWC	-0.210***	-0.211***	-0.208***	-0.229***	-0.223***	-0.228***	-0.185***	-0.190***	-0.185***
	[0.020]	[0.020]	[0.020]	[0.026]	[0.025]	[0.026]	[0.029]	[0.029]	[0.029]
R&D	0.728***	0.733***	0.738***	0.717***	0.741***	0.725***	0.455***	0.433***	0.467***
	[0.084]	[0.083]	[0.083]	[0.095]	[0.095]	[0.094]	[0.116]	[0.114]	[0.115]
LEVERAGE	-0.148***	-0.147***	-0.146***	-0.137***	-0.134***	-0.136***	-0.176***	-0.174***	-0.173***
	[0.010]	[0.010]	[0.010]	[0.011]	[0.011]	[0.011]	[0.018]	[0.017]	[0.017]
CFLOW	0.059**	0.074***	0.067***	0.053**	0.063**	0.059**	0.151***	0.181***	0.165***
	[0.024]	[0.024]	[0.024]	[0.025]	[0.026]	[0.025]	[0.046]	[0.047]	[0.047]
CAPEXP	-0.313***	-0.313***	-0.318***	-0.264***	-0.268***	-0.266***	-0.475***	-0.473***	-0.484***
	[0.031]	[0.031]	[0.031]	[0.035]	[0.035]	[0.035]	[0.062]	[0.063]	[0.063]
PAYER_DUMMY	-0.034***	-0.038***	-0.037***	-0.036***	-0.042***	-0.037***	-0.011	-0.015**	-0.013*
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.007]	[0.007]	[0.007]
ACQUISITIONS	-0.277***	-0.272***	-0.268***	-0.291***	-0.290***	-0.289***	-0.145***	-0.132***	-0.131***
	[0.018]	[0.017]	[0.017]	[0.019]	[0.019]	[0.018]	[0.046]	[0.046]	[0.045]
COUNTRY_GVSCORE	-0.019***		-0.016***	-0.063***		-0.071***	-0.010**		-0.011**
	[0.003]		[0.004]	[0.011]		[0.011]	[0.005]		[0.005]
FIRM_GVSCORE		-0.028***	-0.021***		-0.030***	-0.040***		-0.031***	-0.033***
		[0.006]	[0.006]		[0.008]	[0.008]		[0.011]	[0.011]
Constant	0.308***	0.288***	0.304***	0.399***	0.254***	0.413***	0.174***	0.161***	0.170***
	[0.033]	[0.036]	[0.035]	[0.038]	[0.027]	[0.038]	[0.047]	[0.050]	[0.050]
Adjusted R-sq	0.371	0.37	0.373	0.404	0.4	0.407	0.336	0.338	0.34
Observations	19476	19476	19476	14268	14268	14268	5208	5208	5208

Year Dummies	ALL OBSERVATIONS			HIGH GOVERNANCE COUNTRIES			LOW GOVERNANCE COUNTRIES		
2003	0.008***	0.009***	0.008***	0.004	0.007**	0.002	0.014**	0.013**	0.012*
	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.006]	[0.007]	[0.007]
2004	0.008**	0.010**	0.009**	0.005	0.009*	0.006	0.012*	0.012*	0.012*
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.007]	[0.007]	[0.007]
2005	0.007*	0.009**	0.008*	0.003	0.012**	0.004	0.005	0.006	0.006
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.007]	[0.007]	[0.007]
2006	0.002	0.004	0.003	0.00	0.004	0.002	0.001	0.002	0.002
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.007]	[0.007]	[0.007]
2007	-0.003	-0.001	-0.003	-0.006	0.00	-0.004	-0.006	-0.005	-0.006
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.007]	[0.007]	[0.007]
2008	-0.004	-0.001	-0.003	-0.010*	-0.005	-0.008	0.00	0.004	0.00
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.007]	[0.007]	[0.007]
2009	0.008*	0.013***	0.010**	0.001	0.009*	0.001	0.017**	0.021***	0.016**
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.008]	[0.008]	[0.008]
2010	0.010**	0.016***	0.012***	0.005	0.013**	0.007	0.019**	0.026***	0.020**
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.008]	[0.008]	[0.008]
2011	0.007*	0.014***	0.010**	0.002	0.010*	0.004	0.016**	0.024***	0.017**
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.008]	[0.007]	[0.008]
2012	-0.005	0.001	-0.003	-0.008	-0.003	-0.010*	0.005	0.019**	0.009
	[0.005]	[0.005]	[0.005]	[0.005]	[0.005]	[0.005]	[0.008]	[0.008]	[0.009]
2013	0.003	0.010**	0.005	-0.002	0.007	0.001	0.01	0.017**	0.012
	[0.004]	[0.004]	[0.005]	[0.006]	[0.006]	[0.006]	[0.007]	[0.007]	[0.007]

This table reports pooled time-series cross-sectional estimates for the cash ratio (CASH). Country level governance is measured by; 1) the average of six World Bank Governance Indicators (COUNTRY_GVSCORE) in Panel A; 2) RULE OF LAW in Panel B; and the average firm governance score by country and year (CountryMean_FIRM_GVSCORE) in Panel C. The sample period is from 2002 to 2013. All regressions include year and industry fixed effects. Standard errors reported in brackets are clustered at the firm-level. Definitions of all variables are given in Table 1. The symbols ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel B: Rule of law

	ALL OBSERVATIONS			HIGH GOVERNANCE COUNTRIES			LOW GOVERNANCE COUNTRIES		
RULE OF LAW	-0.015***		-0.011***	-0.088***		-0.088***	-0.008*		-0.009**
	[0.003]		[0.003]	[0.014]		[0.014]	[0.004]		[0.004]
FIRM_GVSCORE		-0.028***	-0.021***		-0.030***	-0.031***		-0.031***	-0.033***
		[0.006]	[0.006]		[0.008]	[0.008]		[0.011]	[0.011]
Constant	0.300***	0.288***	0.297***	0.433***	0.254***	0.431***	0.172***	0.161***	0.169***
	[0.032]	[0.036]	[0.035]	[0.040]	[0.027]	[0.040]	[0.047]	[0.050]	[0.049]
Adjusted R-sq	0.37	0.37	0.372	0.404	0.4	0.406	0.336	0.338	0.339
Observations	19476	19476	19476	14268	14268	14268	5208	5208	5208
2008	-0.002	-0.001	-0.001	0.003	-0.005	0.005	0.001	0.004	0.001
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.007]	[0.007]	[0.007]
2009	0.011***	0.013***	0.012***	0.015***	0.009*	0.017***	0.018**	0.021***	0.017**
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.008]	[0.008]	[0.008]
2010	0.014***	0.016***	0.015***	0.021***	0.013**	0.024***	0.021***	0.026***	0.021***
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.008]	[0.008]	[0.008]
2011	0.010**	0.014***	0.012***	0.014***	0.010*	0.017***	0.017**	0.024***	0.018**
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.008]	[0.007]	[0.008]

Panel C: The average firm governance score by country and year (CountryMean_FIRM_GVSCORE)

	ALL OBSERVATIONS			HIGH GOVERNANCE COUNTRIES			LOW GOVERNANCE COUNTRIES		
CountryMean_ FIRM_GVSCORE	-0.031***		-0.031***	-0.031**		-0.031**	-0.061***		-0.061***
	[0.007]		[0.007]	[0.013]		[0.013]	[0.016]		[0.016]
AdjFIRM_GVSCORE		-0.026***	-0.024***		-0.029***	-0.029***		-0.008	-0.007
		[0.008]	[0.008]		[0.010]	[0.010]		[0.014]	[0.014]
Constant	0.357***	0.324***	0.344***	0.271***	0.242***	0.255***	0.202***	0.159***	0.197***
	[0.045]	[0.049]	[0.048]	[0.027]	[0.027]	[0.027]	[0.051]	[0.049]	[0.052]
Adjusted R-sq	0.367	0.366	0.368	0.398	0.399	0.4	0.34	0.335	0.34
Observations	20804	20804	20804	14268	14268	14268	5208	5208	5208
2008	-0.001	-0.002	-0.001	-0.005	-0.006	-0.005	0.005	0.003	0.004
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.007]	[0.007]	[0.007]
2009	0.013***	0.012***	0.013***	0.009*	0.008	0.010*	0.022***	0.022***	0.022***
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.008]	[0.008]	[0.008]
2010	0.016***	0.015***	0.017***	0.013**	0.011**	0.013**	0.028***	0.025***	0.028***
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.008]	[0.007]	[0.008]
2011	0.014***	0.012***	0.014***	0.010*	0.008	0.010*	0.025***	0.022***	0.025***
	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]	[0.005]	[0.008]	[0.007]	[0.008]

Table 4: Simultaneous equations among firm and country-level governance and firm value

Panel A1: The average of six World Bank Governance Indicators (COUNTRY_GVSCORE)

	ALL OBSERVATIONS			
FIRM_VALUE equation				
Constant	0.724	0.837	1.029*	0.52
	[0.538]	[0.549]	[0.557]	[0.538]
$EARNINGS_t$	0.904***	1.161***	1.209***	0.873***
	[0.139]	[0.148]	[0.151]	[0.139]
$dEARNINGS_t$	0.238*	0.144	0.159	0.173
	[0.123]	[0.126]	[0.127]	[0.124]
$dEARNINGS_{t+1}$	1.177***	1.223***	1.219***	1.157***
	[0.117]	[0.119]	[0.120]	[0.117]
$dNET\_ASSETS_t$	0.908***	0.919***	1.051***	0.923***
	[0.073]	[0.074]	[0.075]	[0.073]
$dNET\_ASSETS_{t+1}$	0.514***	0.489***	0.485***	0.531***
	[0.047]	[0.048]	[0.048]	[0.047]
$R\&D_t$	5.147***	5.326***	5.262***	5.441***
	[0.384]	[0.397]	[0.400]	[0.385]
$dR\&D_t$	-6.200***	-6.104***	-6.320***	-6.008***
	[1.055]	[1.077]	[1.086]	[1.058]
$dR\&D_{t+1}$	-5.161***	-5.224***	-5.196***	-5.053***
	[1.112]	[1.132]	[1.140]	[1.114]
$INTEREST_t$	6.711***	10.137***	10.733***	6.700***
	[1.059]	[1.175]	[1.210]	[1.064]
$dINTEREST_t$	-10.972***	-12.382***	-12.029***	-11.087***
	[1.776]	[1.815]	[1.828]	[1.779]
$dINTEREST_{t+1}$	-4.667***	-3.652**	-3.222*	-5.277***
	[1.612]	[1.646]	[1.661]	[1.621]
$DIVIDEND_t$	15.399***	15.496***	15.513***	14.648***
	[0.456]	[0.466]	[0.469]	[0.474]
$dDIVIDEND_t$	1.536*	1.366	1.397	1.477*
	[0.868]	[0.884]	[0.889]	[0.869]
$dDIVIDEND_{t+1}$	11.374***	11.262***	11.354***	11.515***
	[0.751]	[0.764]	[0.769]	[0.754]
$dFIRM\_VALUE_{t+1}$	0.192***	0.193***	0.192***	0.192***
	[0.012]	[0.012]	[0.013]	[0.012]
$CASH_t$	0.943***	1.506***	-0.017	3.196***
	[0.327]	[0.384]	[0.425]	[0.106]
$COUNTRY\_GVSCORE_t$	-0.276***		-0.098*	
	[0.043]		[0.055]	
$CASH_t$*$COUNTRY\_GVSCORE_t$	1.818***		1.469***	
	[0.238]		[0.267]	
$FIRM\_GVSCORE_t$		-1.151***	-1.429***	
		[0.174]	[0.197]	
$CASH_t$*$FIRM\_GVSCORE_t$		3.334***	2.619***	
		[0.689]	[0.760]	
$CASH_t$*$DIVIDEND_t$				2.603***
				[0.532]
2008	-0.371***	-0.350***	-0.341***	-0.365***
	[0.072]	[0.073]	[0.074]	[0.072]
2009	-0.098	-0.07	-0.041	-0.087
	[0.071]	[0.072]	[0.073]	[0.070]
2010	0.068	0.117	0.144*	0.083
	[0.071]	[0.072]	[0.074]	[0.070]
2011	-0.227***	-0.170**	-0.146**	-0.209***
	[0.070]	[0.071]	[0.073]	[0.070]

Panel A1 continues

FIRM_GVSCORE equation				
Constant	-0.08	-0.196**	-0.188*	-0.095
	[0.098]	[0.098]	[0.098]	[0.098]
$RSIZE_t$	0.034***	0.040***	0.040***	0.034***
	[0.002]	[0.002]	[0.002]	[0.002]
$LEVERAGE_t$	0.056***	0.060***	0.056***	0.058***
	[0.009]	[0.009]	[0.009]	[0.009]
$CASH\_FLOW_t$	0.307***	0.258***	0.276***	0.295***
	[0.025]	[0.025]	[0.025]	[0.025]
$EXTERNAL\_FINANCE_t$	0.167***	0.164***	0.162***	0.166***
	[0.003]	[0.003]	[0.003]	[0.003]
$FIRM\_VALUE_t$	-0.001	0.015***	0.009***	0.003
	[0.003]	[0.003]	[0.003]	[0.003]
2008	0.022*	0.028**	0.025**	0.023*
	[0.012]	[0.012]	[0.012]	[0.012]
2009	0.037***	0.038***	0.037***	0.037***
	[0.012]	[0.012]	[0.012]	[0.012]
2010	0.050***	0.049***	0.049***	0.049***
	[0.012]	[0.012]	[0.012]	[0.012]
2011	0.058***	0.061***	0.060***	0.059***
	[0.012]	[0.012]	[0.012]	[0.012]
Observations	17720	17720	17720	17720

This table reports 3SLS estimation for simultaneous equation system for firm value (FIRM_VALUE) and corporate governance (FIRM_GVSCORE). Country level governance is measured by; 1) the average of six World Bank Governance Indicators (COUNTRY_GOV) in Panel A; 2) RULE OF LAW in Panel B; and the average firm governance score by country and year (CountryMean_FIRM_GVSCORE) in Panel C. The sample period is from 2002 to 2013. Definitions of all variables are given in Table 1. The symbols ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A2: The average of six World Bank Governance Indicators (COUNTRY_GVSCORE) and high and low governance countries

	HIGH GOVERNANCE COUNTRIES				LOW GOVERNANCE COUNTRIES			
FIRM_VALUE equation								
$CASH_t$	0.305	3.542***	1.523	3.572***	0.573*	-0.195	-2.608***	1.327***
	[0.800]	[1.217]	[2.787]	[0.126]	[0.333]	[0.576]	[0.841]	[0.208]
$COUNTRY\_GVSCORE_t$	-0.484***		-0.823***		-0.265***		-0.303***	
	[0.105]		[0.204]		[0.062]		[0.075]	
$CASH_t$*$COUNTRY\_GVSCORE_t$	2.346***		1.479		1.082***		1.994***	
	[0.554]		[0.966]		[0.298]		[0.411]	
$FIRM\_GVSCORE_t$		-4.236***	-4.861***			-4.041***	-4.252***	
		[0.528]	[0.684]			[0.592]	[0.589]	
$CASH_t$*$FIRM\_GVSCORE_t$		-0.687	-0.912			9.680***	13.018***	
		[1.881]	[2.480]			[2.822]	[2.888]	
$CASH_t$*$DIVIDEND_t$				2.474***				8.962***
				[0.562]				[2.171]
2008	-0.384***	-0.250**	-0.262**	-0.387***	-0.387***	-0.270*	-0.311**	-0.326***
	[0.087]	[0.106]	[0.116]	[0.087]	[0.123]	[0.141]	[0.140]	[0.122]
2009	-0.125	0.035	-0.017	-0.111	-0.136	-0.047	-0.095	-0.052
	[0.085]	[0.103]	[0.114]	[0.085]	[0.125]	[0.140]	[0.141]	[0.122]
2010	0.103	0.378***	0.360***	0.111	-0.052	0.12	0.061	0.035
	[0.085]	[0.105]	[0.115]	[0.085]	[0.123]	[0.138]	[0.140]	[0.120]
2011	-0.210**	0.061	0.04	-0.202**	-0.300**	-0.118	-0.186	-0.200*
	[0.085]	[0.104]	[0.114]	[0.085]	[0.123]	[0.138]	[0.140]	[0.120]
FIRM_GVSCORE equation								
Constant	-0.036	0.005	-0.015	-0.018	-0.290***	-0.384***	-0.399***	-0.283***
	[0.112]	[0.112]	[0.112]	[0.112]	[0.084]	[0.083]	[0.084]	[0.084]
$RSIZE_t$	0.043***	0.041***	0.043***	0.043***	0.039***	0.046***	0.047***	0.039***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.003]	[0.003]	[0.003]	[0.003]
$LEVERAGE_t$	0.039***	0.024***	0.026***	0.036***	0.059***	0.029**	0.030**	0.056***
	[0.009]	[0.009]	[0.009]	[0.009]	[0.014]	[0.014]	[0.014]	[0.014]
$CASH\_FLOW_t$	0.127***	0.136***	0.125***	0.140***	0.168***	0.161***	0.140**	0.191***
	[0.022]	[0.021]	[0.021]	[0.022]	[0.059]	[0.059]	[0.059]	[0.059]
$EXTERNAL\_FINANCE_t$	0.035***	0.028***	0.028***	0.036***	0.113***	0.112***	0.113***	0.113***
	[0.003]	[0.003]	[0.003]	[0.003]	[0.004]	[0.004]	[0.004]	[0.004]
$FIRM\_VALUE_t$	-0.001	-0.011***	-0.006**	-0.007**	0.027***	0.021***	0.025***	0.024***
	[0.003]	[0.003]	[0.003]	[0.003]	[0.005]	[0.005]	[0.005]	[0.005]
Observations	12692	12692	12692	12692	5028	5028	5028	5028

Panel B1: Rule of law

	ALL OBSERVATIONS			
FIRM_VALUE equation				
$CASH_t$	0.857**	1.506***	0.201	3.196***
	[0.356]	[0.384]	[0.401]	[0.106]
RULE OF LAW_t	-0.193***		0.044	
	[0.039]		[0.064]	
$CASH_t$*RULE OF LAW_t	1.633***		1.106***	
	[0.226]		[0.300]	
$FIRM\_GVSCORE_t$		-1.151***	-1.676***	
		[0.174]	[0.219]	
$CASH_t$*$FIRM\_GVSCORE_t$		3.334***	2.690***	
		[0.689]	[0.842]	
$CASH_t$*$DIVIDEND_t$				2.603***
				[0.532]
FIRM_GVSCORE equation				
$EXTERNAL\_FINANCE_t$	0.167***	0.164***	0.162***	0.166***
	[0.003]	[0.003]	[0.003]	[0.003]
$FIRM\_VALUE_t$	0.002	0.015***	0.009***	0.003
	[0.003]	[0.003]	[0.003]	[0.003]
Observations	17727	18900	17727	18900

Panel B2: Rule of law and high and low governance countries

	HIGH GOVERNANCE COUNTRIES				LOW GOVERNANCE COUNTRIES			
FIRM_VALUE equation								
$CASH_t$	-1.06	3.542***	-0.684	3.572***	0.427	-0.195	-2.973***	1.327***
	[1.347]	[1.217]	[2.305]	[0.126]	[0.347]	[0.576]	[0.863]	[0.208]
RULE OF LAW_t	-0.552***		-0.879***		-0.204***		-0.249***	
	[0.149]		[0.167]		[0.057]		[0.070]	
$CASH_t$*RULE OF LAW_t	2.862***		2.255**		1.146***		2.080***	
	[0.810]		[0.932]		[0.285]		[0.397]	
$FIRM\_GVSCORE_t$		-4.236***	-4.674***			-4.041***	-4.333***	
		[0.528]	[0.547]			[0.592]	[0.587]	
$CASH_t$*$FIRM\_GVSCORE_t$		-0.687	-0.008			9.680***	13.561***	
		[1.881]	[1.959]			[2.822]	[2.874]	
$CASH_t$*$DIVIDEND_t$				2.474***				8.962***
				[0.562]				[2.171]
FIRM_GVSCORE equation								
$EXTERNAL\_FINANCE_t$	0.036***	0.028***	0.027***	0.036***	0.113***	0.112***	0.113***	0.113***
	[0.003]	[0.003]	[0.003]	[0.003]	[0.004]	[0.004]	[0.004]	[0.004]
$FIRM\_VALUE_t$	-0.007***	-0.011***	-0.011***	-0.007**	0.027***	0.021***	0.025***	0.024***
	[0.003]	[0.003]	[0.003]	[0.003]	[0.005]	[0.005]	[0.005]	[0.005]
Observations	12692	12692	12692	12692	5028	5028	5028	5028

Panel C1: The average firm governance score by country and year (CountryMean_FIRM_CGVSCORE)

	ALL OBSERVATIONS			
FIRM_VALUE equation				
$CASH_t$	1.938***	2.216***	1.008***	3.186***
	[0.245]	[0.127]	[0.272]	[0.106]
$CountryMean\_FIRM\_GVSCORE_t$	0.043		-0.096	
	[0.077]		[0.085]	
$CASH_t$*$CnMean\_FIRM\_GVSCORE_t$	2.411***		2.177***	
	[0.395]		[0.427]	
$AdjFIRM\_GVSCORE_t$		-5.015***	-4.960***	
		[0.586]	[0.585]	
$CASH_t$*$AdjFIRM\_GVSCORE_t$		-8.528***	-8.580***	
		[2.177]	[2.176]	
$CASH_t$*$DIVIDEND_t$				2.540***
				[0.532]
FIRM_GVSCORE equation				
$EXTERNAL\_FINANCE_t$	-0.004*	-0.001	0.001	-0.003*
	[0.002]	[0.002]	[0.002]	[0.002]
$FIRM\_VALUE_t$	0.001	-0.016***	-0.016***	0
	[0.002]	[0.002]	[0.002]	[0.002]
Observations	17720	17720	17720	17720

Panel C2: The average firm governance score by country and year (CountryMean_FIRM_GVSCORE) and high and low governance countries

	HIGH GOVERNANCE COUNTRIES				LOW GOVERNANCE COUNTRIES			
FIRM_VALUE equation								
$CASH_t$	2.297***	2.372***	0.431	3.546***	2.124***	1.544***	1.989***	1.419***
	[0.554]	[0.149]	[0.596]	[0.126]	[0.338]	[0.256]	[0.397]	[0.210]
$CountryMean\_FIRM\_GVSCORE_t$	0.146		-0.067		0.29		0.252	
	[0.156]		[0.164]		[0.222]		[0.259]	
$CASH_t$*$CnMean\_FIRM\_GVSCORE_t$	2.050**		2.914***		-1.868		-2.224	
	[0.813]		[0.858]		[1.344]		[1.561]	
$AdjFIRM\_GVSCORE_t$		-5.121***	-5.199***			-4.900***	-4.853***	
		[0.692]	[0.690]			[1.066]	[1.062]	
$CASH_t$*$AdjFIRM\_GVSCORE_t$		-8.966***	-8.890***			1.639	1.45	
		[2.408]	[2.404]			[5.085]	[5.067]	
$CASH_t$*$DIVIDEND_t$				2.360***				9.719***
				[0.563]				[2.194]
FIRM_GVSCORE equation								
$EXTERNAL\_FINANCE_t$	-0.011***	-0.007***	-0.006***	-0.011***	-0.010***	-0.003	-0.003	-0.010***
	[0.003]	[0.002]	[0.002]	[0.003]	[0.004]	[0.003]	[0.003]	[0.004]
$FIRM\_VALUE_t$	-0.001	-0.019***	-0.019***	-0.002	0.009**	0.001	0	0.008*
	[0.002]	[0.002]	[0.002]	[0.002]	[0.004]	[0.004]	[0.004]	[0.004]
Observations	12692	12692	12692	12692	5028	5028	5028	5028