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Sheltering Corporate Assets from Political Extraction

Abstract

We hypothesize that firms structure their asset holdings so as to shelter assets from extraction by politicians and bureaucrats. Specifically, in countries where the threat of political extraction is higher, we hypothesize that firms will hold a lower fraction of their assets in liquid form. Consistent with this conjecture, using firm-level data from 109 countries, we find that, across countries, corporate holdings of cash and marketable securities are negatively correlated with measures of political corruption. Further, we find that annual investment in property, plant, equipment, and inventory plus dividends is positively correlated with the measures of corruption suggesting that owners channel their cash into harder to extract assets. To the extent that this deployment of assets is less efficient than would occur in the absence of the threat of political extraction, corporate sheltering of assets may represent a channel through which corruption reduces economic growth.

Sheltering Corporate Assets from Political Extraction

1. Introduction

Governments, or more accurately, politicians and bureaucrats extract resources from firms. That phenomenon is well recognized and easily documented. The extraction of resources can be in relatively benign and transparent forms such as the collection of usage fees or taxes on reported income. It can also be harsh and punitive such as the nationalization of firms or even entire industries. In between these arguably two extremes lies the gray area of petty harassment and extortion.

It is also well recognized, but much less easily documented, that firms or, more accurately, their owners, take actions to shelter assets from political extraction. Such sheltering can come in the form of simple, if not easily proven, tax avoidance or even tax evasion. Presumably, however, firms and their owners also take less well recognized and even less well documented steps to avoid asset extraction. Indeed, they may structure their asset holdings in ways that make extraction by politicians and bureaucrats difficult or costly. To the extent that owners do organize their firms' asset holdings to minimize political extraction, the impact is most likely to show up in countries in which the threat of extraction is highest and in firms within those countries that are most vulnerable to asset extraction. Further, to the extent that the structuring of corporate assets is sensitive to the likelihood of political extraction, it is most likely to show up in the holdings of liquid assets for, as Myers and Rajan (1998) observe, "[a]nonymous, transportable assets, such as cash, bearer bonds, or commodities, are easier to steal than fixed assets…"[1] Anonymous assets are more vulnerable because they are more difficult to trace. Liquid

[1] Myers and Rajan (1998), p. 736.

assets are more vulnerable because they are less costly to convert to personal consumption.

With this background in mind, and using a sample of over 29,000 publicly traded firms from 109 countries, this paper examines empirically whether corporate holdings of liquid assets are correlated with measures of the likelihood of political extraction across countries. The primary hypothesis is that corporate holdings of cash and marketable securities are negatively correlated with the likelihood of political extraction. Our presumption is that cash and marketable securities are the assets most easily converted to private benefits and, thus, most likely to be the target of political extraction which, in turn, means they are most in need of sheltering. We consider four measures of the likelihood of political extraction, three of which are from independent sources.

After controlling for certain firm-specific characteristics and for certain country-wide factors identified by prior research as determinants of cash holdings, we find that the ratio of cash plus marketable securities (henceforth, cash) to total assets is significantly negatively correlated with each of the measures of the likelihood of political extraction. This relation is robust to whether we conduct the analysis using firms as the unit of observation or whether we aggregate across firms within each country and use the country as the unit of observation.

These results immediately give rise to the question of - - what happens to the cash? That is, after controlling for other factors, if cash holdings are lower, the cash must be deployed elsewhere. One possibility is that the funds have already been extracted by politicians in the form of bribes extorted. Another possibility is that the funds have been invested in "hard" assets and/or used to pay higher dividends. To investigate the latter

possibility, we examine the ratio of the annual investment in property, plant, equipment, and inventory plus dividends to sales. We find a positive correlation between this ratio and our various measures of the likelihood of political extraction. Thus, a higher potential for political extraction is associated with a higher level of investment in harder to extract assets and/or a higher level of payouts to shareholders. This result demonstrates that cash holdings are lower because firms, or more accurately, their owners, have made an affirmative decision to utilize their funds in ways that shelter them, at least in part, from political extraction.

This result does not rule out the possibility that a portion of the funds have already been extorted by government officials in some form or fashion. We believe, however, that logic rules out the possibility that the negative correlation between cash holdings and the likelihood of political extraction is due to payoffs to politicians.

The logic goes as follows: ex ante (i.e., before the extortion has occurred) in countries where the likelihood of political extraction is higher, we should observe higher levels of cash. The higher levels of cash occur because firms will stockpile cash so as to be able to make the political payoffs and still have sufficient cash to be able to operate efficiently afterwards. Ex post (i.e., after the payoffs have been made) firms should hold the same level of cash across countries regardless of the differences in the likelihood of political extraction. That is, after the extraction has taken place, across countries, firms should hold the optimal level of cash for operating purposes. Ergo, ex ante, we would observe a positive correlation between the level of cash and the likelihood of political extraction. Ex post, we would observe no correlation between the level of cash and the likelihood of political extraction. Both of these predictions are inconsistent with our

finding of a negative correlation between the level of cash and the likelihood of political extraction. Thus, logically, the lower levels of cash in countries with higher likelihoods of political extraction cannot be the outcome of the payment of political extraction. Note that we are not asserting that political extraction of corporate assets does not occur; we are merely asserting that the asset structure that we observe is not the outcome of political extraction.

We further recognize that, in some countries, political extraction may take a different route than direct extortion of bribes. The political extraction may come in the form of higher employment (i.e., less efficient use of labor) in regions that support a particular politician or political party (Bertrand, Kramarz, Schoar and Thesmar (2007), Fan and Wong (2007)). If that were the case, it could explain the higher level of investment in property, plant, equipment, and inventory that we observe in such countries.[2] That is, given the political requirement to provide jobs, firms invest more in hard assets and that is where the cash is deployed. This line of reasoning is consistent with the positive correlation between investment and the level of political extraction that we note above, but it would also predict higher employment levels in countries where the likelihood of political extraction is higher. Contrary to that prediction, we find that the number of employees per dollar of assets employed is negatively correlated with the measures of the likelihood of political extraction. These results are inconsistent with an argument that firms in such countries overinvest to create jobs.

In sum, we find that cash holdings in publicly traded firms are negatively correlated with various measures of the likelihood of political extraction across countries. We interpret this result to mean that the owners of firms structure their firms' asset

[2] Here we are ignoring the possibility that the funds could have been used to pay higher dividends.

holdings so as to reduce the likelihood of political extraction, especially in countries where the risk of such extraction is high.

Prior studies report that multinational firms base their decisions regarding the geographic location of their assets and operations, at least in part, on perceived differences in the necessity to pay bribes across countries (Fan, Morck, Xu and Yeung (2007), Smarzynska and Wei (2000), Wheeler and Mody (1992)). These studies suggest that the potential for political extraction plays a role when owners consider the structure of assets across countries. Our results indicate that the potential for political extraction plays a role in the way in which resident owners structure their firms' assets within countries. In more corrupt countries, firms hold fewer liquid assets than would appear to be optimal in the absence of such corruption. To the extent that that is true, and to the extent that such deviations from the optimum retard economic development, corruption may retard economic development not only because of the direct deadweight costs of political payoffs, but also because of the indirect costs associated with asset sheltering.

Our paper relates to two sets of literature - - the literature on the effect of political corruption on corporate behavior and the literature on the determinants of corporate holdings of liquid assets. We briefly review these literatures in the next section. Section 3 identifies the sources and describes the nature of the data used. Section 4 presents the results of regressions of cash against the measures of the likelihood of political extraction. Section 5 presents the results of regressions of annual investment in property, plant, equipment, and inventory plus dividends against the measures of political extraction and the results of regressions of employment against the measures of the

likelihood of political extraction. Section 6 presents the results of various robustness tests. Section 7 concludes.

2. Background

2.1. Prior studies

The extraction of corporate assets by politicians and government bureaucrats can be classified under the generic rubric of political corruption. The modern literature on this topic is customarily traced to Rose-Ackerman (1975).[3] She analyzes three situations in which politicians extract bribes from firms seeking to obtain government contracts. From that point, the literature has evolved along both theoretical and empirical fronts and has expanded to encompass both micro- and macroeconomic phenomena. The common thread being that the firm is the economic unit analyzed. An incomplete list of contributions to this literature includes Bliss and Di Tella (1997) and Ades and Di Tella (1999) who study the effect of corruption on market structure, Shleifer and Vishny (1994) and Hellman, Jones and Kaufmann (2000) who examine the interaction among firms and politicians in which firms both react to and help shape the political environment in which they operate, Mauro (1995) and Mo (2001) who examine the link between corruption and economic growth, Friedman, Johnson, Kaufmann and Zoido-Lobaton (2000), Johnson, Kaufmann, McMillan and Woodruff (2000), and Choi and Thum (2005) who examine the link between corruption and the size of a country's "underground" economy. This literature also encompasses various survey papers that connect these streams of research including Bardhan (1997) and Graf Lambsdorff (2006).

[3] In his survey, Bardhan (1997) traces the literature on the economics of political corruption to at least the fourth century B.C.

A theoretical antecedent for our study is found in Stulz (2005) who develops a model with three participants: politicians, corporate insiders, and minority outside shareholders. Among other observations and predictions, Stulz posits that

> Corporate insiders can take actions to reduce the state's proceeds from expropriation … In a country with high risk of expropriation, corporate insiders may choose to invest in projects that would be negative net present value projects in a country where the risk of expropriation is trivial just because they reduce the risk of state expropriation [of the firm's assets].[4]

In Stulz' model, owners have the greatest incentive to structure their firm's asset holdings so as to reduce the likelihood that the "state" will extract them in countries in which the likelihood of extraction is greatest. We borrow from Myers and Rajan (1998) and extrapolate from Stulz' idea. As we noted above, Myers and Rajan (1998) argue that anonymous liquid assets are more vulnerable to extraction because they more difficult to traced and are easier and less costly to convert to private consumption.

If we accept the premise that owners have an incentive to structure their firm's assets in ways that reduce the likelihood of extraction by politicians and state bureaucrats and if we accept the premise that liquid assets are more likely to be extracted than are hard assets (i.e., property, plant, equipment, and inventory), it follows that owners are likely to reduce their holdings of liquid assets relative to other assets so as to reduce the likelihood of political extraction. This is not to say that government officials and politicians cannot or do not extract illiquid (or "hard") assets. Indeed, in some instances the "state" has nationalized entire industries. Our point is that liquid assets are easier to convert to private consumption than are hard assets. Thus, for example, a bureaucrat would rather have cash than a ton of cotton, or would even prefer cash to a new

[4] Stulz (2005), p. 1613.

Mercedes. There is a second, related, point and that is that extraction of hard assets is easier to track than extraction of liquid assets (especially if the asset is a new Mercedes) and, in many instances, the extraction of assets can entail personal costs to the bureaucrat if he is caught. In some cases, the cost (or punishment) for such extraction can be extreme, including possibly death (Fan, Rui and Zhao (2006)). Thus, the potential for discovery and the ensuing punishment provide a further incentive for the bureaucrat to prefer harder-to-track cash.

Further, if we assume that the threat of political extraction varies across countries, holding all else constant, it follows that firms will hold relatively fewer liquid assets in countries where the threat of political extraction is greatest.

The reasoning above leads to the primary hypothesis to be tested: Across countries, corporate holdings of liquid assets will be negatively correlated with the likelihood of extraction by politicians and government bureaucrats.

Implicit within the reasoning leading to this empirical prediction are two further assumptions. The first is that politicians adjust their demands for bribes according to firms' abilities to pay. Logic dictates that they do, but there is also empirical support for this presumption. Using survey data from Uganda, Svensson (2003) finds a positive correlation between firms' profitability and their rates of bribery per employee. He concludes "…the more a firm can pay; … the more it must pay…"[5] Likewise, Clarke and Xu (2003) find a positive correlation between firm-level profitability and bribe payments in 21 transition economies in eastern Europe and central Asia: "…enterprises that are more profitable … appear to pay higher bribes."[6]

[5] Svensson (2003), p. 10.
[6] Clarke and Xu (2003), p. 2093.

The second implicit assumption is that there is an optimal level of cash holdings at which firms would operate in the absence of political extraction so that, holding all else constant, deviations from that optimum can be attributed to the potential for political extraction. The modern literature on firm cash management is generally traced to Miller and Orr (1966) who develop an inventory model of cash management in which the determination of the optimal level of cash holdings involves a trade-off between the cost of a cash "stock-out" and the cost of holding non-interest bearing cash. Theoretical extensions include Eppen and Fama (1968, 1969), Constantinides (1976, 1978), Myers (1977) and Kim, Mauer and Sherman (1998).

More recent studies examine the empirical determinants of corporate cash holdings.[7] Opler, Pinkowitz, Stulz and Williamson (1999) study U.S. firms and find evidence consistent with the trade-off theory. They report that, across firms, the ratio of cash to assets is positively correlated with the firms' growth opportunities (i.e., market-to-book ratios) and level of risk (i.e., industry standard deviation of cash flows) and negatively correlated with size (i.e., natural log of assets).

Dittmar, Mahrt-Smith and Servaes (2003) study corporate cash holdings in firms from 45 countries. They cast up their analysis within the framework of a trade-off model of corporate cash holdings, but they focus on the connection between country-level measures of the quality of corporate governance and the level of firm cash holdings. Using firms as the unit of observation, they find that the ratio of cash to assets is positively correlated with firm market-to-book and cash flow-to-asset ratios and negatively correlated with firm size and the ratio of net working capital to assets.

[7] A closely related set of literature estimates the value of cash holdings (e.g. Faulkender and Wang (2006), Pinkowitz and Stulz and Williamson (2006) and Kalcheva and Lins (2007)).

Further, they find that, across countries, the cash-to-asset ratio is negatively correlated with the country's protection of minority shareholders against expropriation by management or controlling shareholders and positively correlated with the development of the country's private credit market. They interpret their findings to be consistent with trade-off theory of cash management with the further proviso that firms hold "too much" cash in countries where outside or minority shareholders have few rights.

Kalcheva and Lins (2007) are primarily concerned with the value of cash holdings across countries. However, they also estimate regressions to identify whether the level of cash is correlated with share ownership by management, especially when management is the largest shareholder. They find a positive correlation between the fraction of shares controlled by management and the level of corporate cash holdings after controlling for variables that capture the trade-off theory of cash holdings.

The importance of the empirical studies of corporate cash holdings is two-fold. First, they provide support for the notion that firms have an optimal level of cash holdings. Second, they guide our choice of firm- and country-level control variables in our regression analysis.[8]

2.2. An illustrative example

Before presenting our formal analysis, a bit of anecdotal evidence is illustrative of the dynamics that we have in mind. In 1992, the Italian government introduced a tax on liquid assets to be effective as of July 9 of that year: "The wealth tax, which will be collected in September, is a tax of 0.6% on deposits held in bank accounts and postal

[8] Other studies of the determinants of corporate cash holdings include Harford (1999), Faleye (2004), Haushalter, Klasa and Maxwell (2007), and Harford, Mansi and Maxwell (2007). These studies are concerned with the use of cash and of the relation between the use of cash and the quality of corporate governance at the firm level.

savings accounts as of July 9. It will apply to current, savings and time-deposits accounts and on longer-term certificates of deposit..."[9] Based on data from *Datastream*, for all 161 non-financial publicly-traded Italian firms, as of the end of 1990, the ratio of cash to total assets was 0.135. As of the end of 1993, the ratio had declined to 0.116. Italian firms and their owners appear to have responded to the potential for increased political extraction by shifting assets from liquid to less liquid forms. This anecdote is far from conclusive, but it exemplifies the idea that we explore more thoroughly below.

3. Data

Our primary empirical tests are based on cross-sectional regressions for the year 2005 encompassing the 109 countries listed in table 1. (As we discuss later, the results for 2005 obtain for the years 2002-2004 and for 2006, albeit with fewer observations.) Our measure of cash plus marketable securities and other financial statement data, including direct ownership of shares by the firm's largest shareholder, are from *Orbis*, a database maintained by *Bureau Van Dijk*. We use four indices to proxy for the relative likelihood of political extraction across countries. The first is from Kaufmann, Kraay and Mastruzzi (2007). The second and third are from the *International Country Risk Guide* (IRCG) compiled by the *Political Risk Services Group*.[10] The fourth is from Neumann (1994). Our primary measure of minority shareholder protection is the country's legal origin from La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999) and from the CIA's *World Factbook*.[11] Our measure of private credit is from Djankov, McLiesh and Shleifer

[9] *Wall Street Journal Europe*, July 13, 1992, "Austerity budget for Italy will avert peril, Amato says – Tax increases, spending cuts and asset sales are part of a $26 billion package."
[10] http://www.prsgroup.com.
[11] https://www.cia.gov/library/publications/the-world-factbook/index.html.

(2007), the *IMF*'s *International Financial Statistics*, and Levine, Loayza and Beck (2000).

To be included in our analysis, a firm must be a non-financial publicly traded company with available cash, marketable securities, and total assets data in *Orbis*, and at least one of the four proxies for the likelihood of political extraction must be available for its home country. Each country listed in table 1 has at least one firm that meets these criteria and every firm that meets these criteria is included in the analysis.

Our primary independent variable is the ratio of cash plus marketable securities (henceforth cash) to total assets. Our primary independent variable is the likelihood of political extraction. To capture this likelihood we use four indices, three of which are from independent sources. We use four indices to alleviate concerns that our results are due to a bias embedded in one of the indices. Each of the indices has certain virtues and potential deficiencies.

The first index, which we label "KKM Corruption," is

> …[T]he extent to which public power is exercised for private gain, including both petty and grand forms of corruption…[12]

This measure, developed by Kaufmann, Kraay and Mastruzzi (2007), is compiled from several data sources including non-governmental organizations, commercial business providers, surveys, and expert assessments. Data from those sources are aggregated into a combined indicator as a weighted average of the underlying data. Relative to our other indices, this measure has several virtues: (1) it is available for the largest set of countries, 109; (2) to the extent that the data sources used to compile the index are independent, it is likely to have smaller measurement error; (3) it is updated annually. The shortcomings

[12] Kaufmann, Kraay and Mastruzzi (2007), p. 4.

are that (1) it is a relatively new index and, as such, it has not yet been validated by use in other studies and (2) the respondent/experts are not from a common pool.

The second index, which we label "ICRG Corruption," is

> …[A]n assessment of corruption within the political system. … The most common form of corruption met directly by business is financial corruption in the form of demands for special payments and bribes connected with import and export licenses, exchange controls, tax assessments, police protection, or loans. Such corruption can make it difficult to conduct business effectively, and in some cases may force the withdrawal or withholding of an investment.[13]

The third index, which we label "ICRG Investment profile," is

> ... [A]n assessment of factors affecting the risk to investment that are not covered by other political, economic and financial risk components. …The subcomponents are: Contract Viability/Expropriation; Profits Repatriation; Payment Delays.[14]

The second and third indices are constructed based on the opinion of global experts and analysts. The virtues of these indices are that (1) they measure separate aspects of the likelihood of political extraction and are developed by the same data provider, the *Political Risk Services Group*; (2) they are updated annually; (3) they have been widely used in prior studies; and (4) they are available for a large set of countries, 97. Their shortcomings are that (1) the experts providing the assessments are not from a common pool and (2) the procedure used to compile the indices is not transparent.

The fourth index, which we label "Neumann Corruption," was developed by Neumann (1994) and is constructed from interviews with German business people whose businesses involve exporting to foreign countries. In spirit, the index attempts to measure the frequency with which side payments to government officials are expected in order to do business in a given country. Relative to the other indices, the virtues of this index are

[13] http://www.prsgroup.com/ICRG_Methodology.aspx.
[14] http://www.prsgroup.com/ICRG_Methodology.aspx.

(1) the respondents are from a common pool and (2) at the time the index was compiled, bribery of foreign officials was legal in Germany and, therefore, the business people interviewed had no particular motive to conceal their payments. The shortcomings of this index are (1) it is available only for 1994 and (2) it is available for fewer countries than the others, 78.

In their "raw" form, three of the measures of the likelihood of political extraction (KKM Corruption, ICRG Corruption, ICRG Investment profile) are scaled so that higher values denote a lower likelihood of political extraction. We invert the original scaling so that higher values of these variables denote a greater likelihood of political extraction. In discussions that follow, we refer to the four indices collectively as the "corruption variables."

Our interest is in the potential for extraction of corporate assets by politicians and bureaucrats. Prior papers by Dittmar et al. (2003) and Kalcheva and Lins (2007) also focus on the extraction of corporate assets, albeit on the expropriation of minority shareholders by controlling shareholders and/or managers. Given the potential overlap of these two themes, we control for the potential of extraction by large shareholders by using the fraction of shares owned by the largest shareholder ("Largest shareholder") and an indicator variable to identify whether the legal origin of the country in which the firm is headquartered is common law ("UK legal origin"). These variables are similar to, but not identical to, those used by Dittmar et al. (2003) and Kalcheva and Lins (2007). We use these proxies because they are available for a larger set of countries.

We also include additional control variables that previous papers have found to be significant in tests of the trade-off theory of optimal cash holdings. Sales growth ("Sales

growth") is measured as the change in sales between year t and year t-1 over sales in year t-1. The ratio of debt to total assets ("Debt/Total assets") is the sum of long term and short term debt at the end of year t divided by total assets at the end of year t. The ratio of cash flow to total assets ("Cash flow/Total assets") is the sum of the earnings after tax plus depreciation for year t divided by total assets at the end of year t. The ratio of change in net working capital over total assets ("Delta NWC/Total assets") is the change in accounts receivable between year t-1 and year t minus the change in accounts payable between year t-1 and year t divided by total assets at the end of year t. The ratio of investments to total assets ("Investments/Total assets") is net capital expenditures in year t plus the change in the inventory between year t-1 and year t plus dividends paid during year t divided by total assets at the end of year t.[15] Size ("Ln(Total assets)") is the natural log of total assets at the end of year t measured in millions of U.S. dollars. The ratio of private credit to GDP ("Private credit/GDP") is the amount of credit provided to non-government owned entities by banks and other financial institutions divided by GDP.[16] Finally, as do the prior studies of corporate cash holdings, we include three-digit SIC industry indicators.

For the variables Cash/Total assets, Largest shareholder, Debt/Total assets, Net working capital/Total assets, and Inventory/Total assets, observations below 0 or above 1

[15] We estimate this variable as [$-\text{Cash}_{(t)} + \text{Cash}_{(t-1)} + \text{Cash flow}_{(t)} + \text{Debt}_{(t)} - \text{Debt}_{(t-1)} -$ Non cash operating net working $\text{capital}_{(t)}$ + Non cash operating net working $\text{capital}_{(t-1)} + \text{Inventory}_{(t)} - \text{Inventory}_{(t-1)}$] / Total $\text{assets}_{(t)}$.

[16] If this variable is available in Djankov, McLiesh and Shleifer (2007), we use their estimate. If Djankov et al. do not provide an estimate, we calculate the variable using IMF data as do Djankov et al. (p. 303): specifically, the variable is computed as the "[R]atio of credit from deposit taking financial institutions to the private sector (IFS lines 22d and 42d) relative to GDP (IFS line 99b). Line 22d measures claims on the private sector by commercial banks and other financial institutions that accept transferable deposits such as demand deposits. Line 42d measures claims on the private sector given by other financial institutions that do not accept transferable deposits but that perform financial intermediation by accepting other types of deposits or close substitutes for deposits..." For a few countries, this variable is not available in either source, but is available in Levine, Loayza and Beck (2000).

must be data errors, therefore, we exclude them. To limit the effect of data errors in the variables Sales growth, Cash flow/Total assets, and Ln(Total assets), which are not naturally bounded between 0 and 1, we exclude the top and bottom 1% of the observations.

Table 1 lists the countries for which we have data on Cash/Total assets and at least one of the corruption variables. It also gives the number of firms for each country in our initial regression (these range from one firm in 12 countries to 5,181 firms in the U.S.) along with the average of the ratios of cash to total assets for all firms in a country (which range from 0.011 in Uruguay to 0.334 in the Virgin Islands).

Table 1 further reports the four corruption variables for each country for the year 2005. As might be expected, the four corruption variables are highly correlated. The correlation coefficients range from 0.66 between ICRG Corruption and ICRG Investment profile to 0.90 between KKM Corruption and ICRG Corruption.

4. Cash holdings and the likelihood of political extraction

4.1. Overview

We use ordinary least squares (OLS) regressions to test our hypothesis. Tables 2 and 3 present our primary results. In table 2, the firm is the unit of analysis. In table 3, the firm-level data are aggregated for each country so that the country is the unit of observation. For each regression, the standard errors are corrected for heteroskedasticity and, for those in table 2, the standard errors are also corrected for the clustering of firms within 3-digit SIC industries in each country. To provide economic context for the effect of each of the independent variables on cash holdings, we report standardized

coefficients. The interpretation of the standardized coefficient is as follows: A one unit change in the independent variable represents the effect of a one standard deviation change in the independent variable on the dependent variable.[17]

In each regression, the dependent variable is the ratio of cash to total assets.

4.2. Firm-level regressions

To begin, we focus on the firm-level regressions in table 2. Each of the regressions in panel A includes one of the corruption variables along with industry indicators as independent variables. As we move across the table, we move from the index that is available for the most countries to the index that is available for the fewest. As the table shows, the sign of the coefficient of each of the corruption variables is negative and highly statistically significant with a p-value of less than 0.001. These results are consistent with our prediction that firms structure their asset holdings so as to shelter liquid assets from political extraction.

Coincidentally, the magnitudes of the coefficients of the corruption variables are roughly the same across the four regressions. To put the coefficients of our corruption indices into economic perspective, across all firms, the mean cash-to-total asset ratio is 0.171. A typical firm in a country with KKM Corruption one standard deviation below the mean would hold 0.203 of its assets in cash. In comparison, the typical firm in a country with KKM Corruption one standard deviation above the mean would hold 0.139 of its assets in cash. This difference corresponds to a 32% decline in the ratio of cash to total assets.

The regressions in panel B parallel those in panel A, except that we now include control variables for the risk of expropriation of minority shareholders by controlling

[17] Legal origin is a binary variable and, therefore, it is not standardized.

shareholders and for the trade-off theory of cash holdings. Because we do not have observations on the control variables for every firm or every country, as we move from panel A to panel B, the number of firms and the number of countries in the regressions declines. For example, in the first regression, the number of firms declines from 29,820 to 17,264 and the number of countries declines from 109 to 84. Perhaps not surprisingly, the countries that drop out of the sample tend to have above average scores on the corruption variables.

Nevertheless, consistent with our hypothesis, the coefficients of our corruption variables are again negative and highly statistically significant with p-values of 0.004 or less. The coefficient of Largest shareholder is also negative and highly statistically significant with a p-value of less than 0.001. The sign and significance of this variable is consistent with the theme that owners structure assets to reduce the likelihood of political extraction. That is, the sign of this coefficient suggests that the greater the ownership of the largest shareholder, the greater is his incentive to shelter assets. Curiously, however, the coefficient of UK legal origin is positive (and statistically significant). This result is opposite that of prior studies. The sign of the coefficient of each of the trade-off theory variables is consistent with prior studies. The important point, however, is that once we introduce these variables, the results are still consistent with our prediction that firms and their owners structure their asset holdings to shelter assets from political extraction. More specifically, they structure their assets holdings to shelter liquid assets more when the likelihood of political extraction is higher.

4.3. Country-level regressions

We now turn to the country-level regressions in table 3. The regressions in table 3 parallel those in table 2 except that the firm-level data are aggregated across all firms in each country so that we have one observation per country. This observation is the average of each variable across all firms in a given country. We estimate the country-level regressions because the number of firms is not constant across countries, which means that the estimated coefficients could be largely determined by a few countries with the largest number of firms. In the country-level regressions, the number of observations is equal to the number of countries for which we have data on a least one firm. So, for example, the first regression has 109 observations and the last has 78. The downside of this approach is that the power of the tests is reduced due to the smaller number of observations.

As shown in panel A of table 3, the coefficient of each of the corruption variables is negative and highly significant with p-values of less than 0.003. Interestingly, the coefficients of the corruption variables are roughly the same size as those in the firm-level regressions of table 2. A typical firm in a country with KKM Corruption one standard deviation below the mean would hold 0.158 of its assets in cash. In comparison, the typical firm in a country with KKM Corruption one standard deviation above the mean would hold 0.088 of its assets in cash, which corresponds to a 44% drop in the ratio of cash to total assets.

Parallel to table 2, the regressions in panel B of table 3 include the control variables. Also as in table 2, when the control variables are included, the coefficient of each of the corruption variables is negative. The p-values are 0.001, 0.012, 0.080, and

0.012, respectively. With the exception of Ln(Total assets), the signs of the coefficients of the control variables are the same as in panel B of table 2.

5. Related issues

5.1. Investments in hard assets and dividend payouts

In sum, both the results of the firm-level regressions and those of the country-level regressions are consistent with our hypothesis that firms and their owners respond to the risk of political extraction by sheltering their liquid assets more in countries in which that risk is higher. More specifically, our tests show that firms hold less cash as a fraction of total assets in countries in which the threat of political extraction is higher. Those results give rise to the question of what happens to the cash. Logically, the cash is either invested in hard assets, paid out to shareholders, or extorted by politicians or government bureaucrats. If the mechanism for sheltering cash is to invest in hard assets or to return capital to shareholders, we would expect to see an increase in investments in property, plant, equipment, and inventory plus dividends as the likelihood of political extraction increases. Henceforth, we use "investments" as shorthand for the sum of annual investment in property, plant, equipment, and inventory plus dividends. (We use this shorthand, in part, because many firms do not pay dividends and, in those firms that do pay dividends, dividends comprise a small fraction of the total "investments".)

To examine this possibility, we estimate firm-level OLS regressions in which the dependent variable is the ratio of investments to sales against the corruption variables along with the control variables used in the regressions above. The dependent variable is

calculated as investment during 2006 divided by sales during 2006. The independent variables are from 2005.

For all the regressions, the standard errors are corrected for heteroskedasticity and for the clustering of firms within 3-digit SIC industries in each country. As before, to provide economic context for the effect of each of the independent variables on the dependent variable, we report standardized coefficients. The results are presented in table 4.

The coefficient of each of the corruption variables is positive and highly statistically significant with a p-value of less than 0.001. These results indicate that, holding other factors constant, firms in countries with a higher threat of political extraction invest more in property, plant, equipment and inventory and/or pay out more to shareholders than do firms in countries with a lower threat of political extraction. The answer to the question posed at the outset of this section as to where the cash goes is that, at least in part, it is used to make investments in assets that are harder to extract or paid out to shareholders. This result is consistent with our prediction that firms and their owners structure assets to shelter them from political extraction.

These results do not rule out the possibility that, in countries with higher corruption, cash holdings are lower because, at least in part, the cash has been extorted by politicians and bureaucrats. However, logic militates against that possibility. The observed cash-to-assets ratio could be measured either before or after the payment of bribes. On the one hand, if the bribes have yet to be paid and if firms operate with an optimal level of cash, the observed cash-to-assets ratio should be higher in countries where the threat of political extraction is higher because firms would hold sufficient cash

so as to be able to pay bribes and still have enough cash to operate efficiently. On the other hand, if the bribes have already been paid and if firms operate with an optimal level of cash, the observed cash-to-assets ratio would be independent of the likelihood of political extraction across countries. In either case, the negative coefficients of the corruption variables in tables 2 and 3 are inconsistent with the logic. In short, the regressions combined with the logic lead to the conclusion that firms and their owners have made affirmative decisions to hold fewer liquid assets when the risk of political extraction is higher.

5.2. Employment

As argued by Bertrand et al. (2007) and Fan and Wong (2007), politicians may extract resources from firms by requiring that firms boost employment unnecessarily in regions or districts where the politicians stand for re-election. If this occurs in countries with higher levels of corruption, it might explain the higher cash outflows to fund investments in such countries. All else equal, it would also predict higher levels of employment in those countries. To consider this alternative explanation of lower cash holdings (and higher investments) in countries with a higher likelihood of political extraction, we estimate firm-level OLS regressions in which the dependent variable is the number of employees per dollar of total assets and the independent variables are the four measures of the likelihood of political extraction along with the control variables used in the previous firm-level regressions. We additionally include GDP per capita to control for the differences in wages across countries.

The dependent variable is the number of employees reported at year-end 2005 divided by total assets as of year-end 2005. As always, standard errors are adjusted for heteroskedasticity and clustering, and reported coefficients are standardized.

The results of the regressions are reported in table 5. Each of the corruption variables has a negative and highly significant coefficient (p-values < 0.001). These results are inconsistent with the conjecture that the cash holdings are lower in countries with a higher likelihood of political extraction because politicians require companies to boost employment. These results support the interpretation that the negative correlations between cash holdings and measures of political corruption arise because firms and their owners structure their asset holdings, at least in part, so as to shelter them from political extraction.

6. Robustness tests

6.1. Other years

Our results are based on cross-sectional regressions with data for the year 2005. The virtue of 2005 data relative to the other years for which we have data is a larger number of observations. Nevertheless, we also estimated each of the regression specifications in tables 2 and 3 with data for the years 2002-2004 and for 2006.

For illustrative purposes, the results for the firm-level regressions using KKM Corruption as the measure of the likelihood of political extraction are reported in table 6. Consistent with tables 2 and 3, the coefficient of KKM Corruption is negative for each year. The p-values range from 0.001 for 2006 to 0.027 for 2003. The regressions were also estimated using the other three corruption variables and using aggregated country-

level data. In each case, the coefficient of the corruption variable is negative. Twenty five of the 28 p-values are less than 0.05. The other three are 0.056, 0.077, and 0.119. Thus, the negative correlation between corporate cash holdings and the likelihood of political extraction is not unique to 2005.

6.2. Endogeneity

A fundamental requisite for OLS estimation to provide consistent parameter estimates is that the unobservable error term be uncorrelated with each of the independent variables. An independent variable that is uncorrelated with the error term is "exogenous." An independent variable that is correlated with the error term is "endogenous." Endogeneity may arise because of an omitted variable, because of measurement error in an independent variable, or because of simultaneity in the measurement of an explanatory variable and the dependent variable.[18] We address these concerns in order.

The concern with omitted variables is that we have overlooked variables that explain the ratio of cash to total assets. Of course, it is never possible to rule out that relevant determinants of cash holdings are omitted. However, our regressions include all of the variables that prior papers have found to be significantly related to corporate cash holdings both within and across countries.[19] Further, the high explanatory power of the regressions, in which adjusted R-squares are as high as 68% in the country-level regressions, suggests that it is unlikely that a major determinant of cash holdings has been omitted.

[18] Wooldridge (2002), pp. 50-51.
[19] Opler et al. (1999) include the volatility of cash flows within an industry. Our use of industry indicators captures this industry-specific effect.

The concern with measurement error is that the variables employed are different from those used by firms to make decisions. In particular, the measures of corruption that we use are proxies for the "true" level of the likelihood of political extraction and, thus, measure this likelihood with error. To the extent that the measurement error is uncorrelated with the proxy for political extraction, OLS regressions still provide consistent coefficient estimates. To the extent that the measurement error is correlated with the proxy, the coefficient estimates are inconsistent.

Our concern on this issue is allayed by the fact that we use four proxies for the likelihood of political extraction that are compiled by three independent providers. Thus, even if each of the proxies is measured with error, it is unlikely that the measurement errors are perfectly correlated across the measures used. Given that the estimated coefficients across the four corruption variables are all negative, all significant, and of roughly the same magnitude, it is unlikely that the results are due to measurement error in the key independent variable.

As regards concern with simultaneity in the determination of the independent and dependent variables, a common approach for addressing this concern is to estimate the regression with lagged values of the independent variables. We, thus, re-estimate the first three regressions of table 2 with each of the independent variables lagged one, two, or three years. Because Neumann Corruption is only available for 1994, when re-estimating the fourth regression, that variable is always measured as of 1994, but the other independent variables are lagged. In each of these regressions, the corruption variable has a negative coefficient and the p-value is less than 0.001.

A second common approach to dealing with the simultaneity problem is to use an instrumental variable to predict the endogenous variable. In our specifications these are the various proxies for the likelihood of political extraction. This method has the related virtue of also addressing concerns with errors in measurement.

We estimate the simultaneous equations separately using two different instruments. The first is an index of Ethnolinguistic fractionalization constructed by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999). This index is computed as the

> [a]verage value of five different indices of ethnolinguistic fractionalization. Its value ranges from 0 to 1. The five component indices are: (1) index of ethnolinguistic fractionalization in 1960, which measures the probability that two randomly selected people from a given country will not belong to the same ethnolinguistic group (the index is based on the number and size of population groups as distinguished by their ethnic and linguistic status); (2) probability of two randomly selected individuals speaking different languages; (3) probability of two randomly selected individuals do not speak the same language; (4) percent of the population not speaking the official language; and (5) percent of the population not speaking the most widely used language.[20]

In ethnically diverse societies, groups in power expropriate the opposition to the benefit of their supporters. Mauro (1995) observes that "…[e]thnolinguistic fractionalization is highly correlated with corruption…. Yet it can be assumed to be exogenous both to economic variables and to institutional efficiency." [21] It can also be assumed to be exogenous to firm characteristics.

The second instrumental variable, used by Durnev and Fauver (2007), is the Latitude of the country, scaled between 0 and 1. This variable is from the CIA's *World Factbook*.[22] Proximity to the equator has historically enabled countries to develop their

[20] La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999), p. 238.
[21] Mauro (1995), p. 863.
[22] https://www.cia.gov/library/publications/the-world-factbook/index.html.

economies and institutions (Landes (1998), La Porta et al, (1999)). This variable, too, can be assumed to be exogenous to firm characteristics.

In total, we estimate 32 sets of simultaneous equations. We estimate the four regressions in panel B of table 2 separately with each of the instrumental variables. We, then, re-estimate the same regressions with independent variables lagged one, two or three years. As a reference, the first column of table 7 gives the coefficients of the second stage regression with KKM Corruption instrumented in the first stage with the Ethnolinguistic fractionalization index. The second column gives the results with KKM Corruption instrumented with the Latitude of the country. In each regression, KKM Corruption has a negative coefficient with a p-value of less than 0.001. In each of the other 30 second stage regressions, the coefficient of the corruption variable is negative with a p-value of less than 0.001.

6.3. Tobit and logistic transformations of the dependent variable

The regressions of tables 2 and 3 use OLS even though the dependent variable (Cash/Total assets) is bounded between 0 and 1. This approach is potentially problematic in that it leaves open the possibility that the error term may not be normally distributed. In this section, we address this issue in two ways. First, we estimate a two-boundary Tobit model where Cash/Total assets is censored at 0 and 1. The model includes each of the independent variables used in the regressions of table 2. To adjust for heteroskedasticity, standard errors are bootstrapped based on 1,000 repetitions. Columns 1 - 4 of table 8 show the results of the regression estimated with firm level-data as in panel B of table 2. In each regression, the coefficient of the corruption variable is negative with a p-value less than 0.001.

Second, we use a logistic transformation where the dependent variable, z_i, is computed as $z_i = \ln\left(\frac{y_i}{1-y_i}\right)$, where y_i is the ratio of cash to total assets. By construction, $-\infty < z_i < \infty$. We re-estimate the regressions of panel B of table 2 using OLS with the transformed dependent variable and with standard errors corrected for heteroskedasticity and clustering. We exclude the top and bottom 1% of observations of the transformed dependent variable. The results are given in columns 5 - 8 of table 8.

The coefficient of each of the corruption variables is negative with p-values of 0.009, 0.048, 0.064, and less than 0.001, respectively. Thus, we conclude that truncation of the dependent variable in the regressions of tables 2 and 3 is not causing consequential bias in the coefficients of the corruption variables.

6.4. Minority shareholder protection

As we noted, in a prior study, Dittmar et al. (2003) report that, across countries, the cash-to-total asset ratio is significantly negatively correlated with a proxy for the quality of minority shareholder legal protection against expropriation by a controlling shareholder or management. A concern that has been expressed to us is that our control for minority shareholder protection may be inadequate and that, across countries, our corruption variables are just a different proxy for the quality of minority shareholder protection. This concern presumes that the corruption variables are negatively correlated with the quality of minority shareholder protection. That is, countries with higher corruption provide less legal protection for minority shareholders which would, in turn, imply a positive correlation between cash and corruption. However, we find a negative correlation between cash and corruption. Thus, if corruption is merely picking up

minority shareholder protection or the lack thereof, our result is the opposite of what would be predicted based upon Dittmar et al.

Nevertheless, we estimate the regressions of tables 2 and 3 with two other widely used proxies for minority shareholder legal protection. They are the index of "anti-director rights" developed by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998) and updated by Djankov, La Porta, Lopez-de-Silanes and Shleifer (2008) and the index of "anti self-dealing" developed by Djankov et al. (2008). The first of these is available for XXX of the 109 countries in our sample and the second is available for XXX.

Consistent with our prior results, the coefficient of the corruption variable is negative in each of the regressions. For three of the four corruption variables (KKM Corruption, ICRG Corruption and Neumann Corruption) the p-value is 0.073 or less in each regression. Although negative, the coefficient ICRG Investment profile is not significant in the country-level regressions, but remains highly significant (p-value of 0.006 or less) in the firm-level regressions. These results indicate that the negative correlation between cash holdings and the corruption variables is unlikely to reflect an inadequate control for the degree of minority shareholder legal protection.

In each of the country-level regressions, similar to the coefficient of UK legal origin, the coefficients of Anti-director rights and Anti self-dealing have positive, although insignificant, coefficients. In the firm-level regressions, however, the coefficients of the anti-director rights index and those of the anti self-dealing index have negative signs and are significantly negatively for the anti-director rights index. Thus, the sign and significance of the minority shareholder protection variable depend very much upon the index used. Importantly for the hypothesis of major concern in this study,

the sign of the corruption variables is not sensitive to the specific measure of minority shareholder legal protection used.

6.5. Other issues

Two arguments have been made to us regarding the reliability of our results. The first is that tax rates may be higher in more corrupt countries and, thus, **owners** have a greater incentive to shelter income so as to avoid taxes in such countries. That may well be true, but our response is twofold: first, managing earnings to shelter income from taxation does not translate into lower cash holdings. Indeed, except for the effect on taxes, the earnings management will have no effect on cash flow. Second, all else equal, lower taxes would imply higher, not lower, cash holdings with the result that taxes would be.

The second is that an alternative to political extraction is to hold the cash in a Swiss bank account. However, assuming that the firm's balance sheet items are accurate (recall these are all audited publicly traded firms) and assuming that the cash in the Swiss bank account is an asset of the firm and, therefore, reported on the balance sheet, the cash is not sheltered from political extraction. Or, if it is, we should not observe any relation between cash holdings and the potential for political extraction.

6.6. Summation

In sum, the robustness tests indicate that the results of our primary analysis as reported in tables 2 and 3 are not unique to 2005, are not the result of omitted independent variables, are not due to errors in measurement of the independent variables, are not due to simultaneity in the determination of the dependent and independent

variables, and are not specific to the estimation technique employed. This analysis bolsters our confidence in the results of our primary analysis.

7. Conclusion

It is frequently asserted in international management and economics texts that multinational firms base their asset locations, in part, on the relative risks of state expropriation of corporate assets with the proviso that the location of certain types of assets may be easier to control than others. Consider the following:

> The natural location of different stages of production may be resource-oriented, footloose, or market-oriented. Oil, for instance, is drilled in and around the Persian Gulf, Venezuela, and Indonesia. No choice exists for where this activity takes place. Refining is footloose; a refining facility can easily be moved to another location or country. Whenever possible, oil companies have built refineries in politically safe countries…[23]

Building upon Stulz (2005), we argue that the same principles apply within countries except that owners will exercise control over the type of assets in which to invest based upon the likelihood of political extraction of their firms' assets. In particular, given that liquid assets are easier to extract than are hard assets such as property, plant, equipment and inventory, we hypothesize that owners hold a lower fraction of their firms' assets in cash in countries where the likelihood of political extraction is higher.

We test this hypothesis with data on publicly traded firms from 109 countries. To conduct the tests, we estimate regressions using the ratio of cash to total assets as the dependent variable and alternately using four different measures of the likelihood of political extraction (which we label the corruption variables) as the key independent

[23] Eiteman, Stonehill and Moffett (2001), pp. 399-400.

variable along with a host of control variables that prior studies have found to be significant in explaining corporate cash holdings within and across countries. Consistent with our prediction, in each of the regressions, the coefficient of the corruption variable is negative and statistically significant.

We also address the question of - - where does the cash go? We show that firms located in countries where the likelihood of political extraction is higher invest more in harder to extract assets and/or pay higher dividends. This result indicates that cash holdings are lower because firms and their owners have made a deliberate choice to alter the structure of their asset holdings in the face of the potential for political extraction. To the extent that this choice pushes firms away from an optimal use of resources, the implication is that firms end up operating relatively less efficiently than they would have in the absence of this risk. This observation connects our study to earlier research showing that political corruption is associated with lower rates of national economic growth. In particular, one channel through which political corruption may lead to lower rates of economic growth is by inducing firms to structure their assets differently than they would have and that the alternative structure retards economic development.

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Table 1. Descriptive statistics.

This table gives descriptive statistics as of 2005, by country, for all non-financial publicly traded companies with cash, marketable securities, and total assets data available in *Orbis* from countries for which at least one corruption variable is available. Cash/Total assets is the ratio of cash plus marketable securities to total assets. The four corruption variables are KKM Corruption, ICRG Corruption, ICRG Investment profile, and Neumann Corruption. KKM Corruption measures "…the extent to which public power is exercised for private gain…" (Kaufmann, Kraay and Mastruzzi, 2007). ICRG Corruption is "…an assessment of corruption within the political system." ICRG Investment profile is "…an assessment of factors affecting the risk to investment" (*International Country Risk Guide* compiled by the *Political Risk Services Group*). Neumann Corruption, developed by Neumann (1994), measures the frequency with which side payments to government officials are expected in order to do business in a given country. Higher values of the corruption variables denote a greater likelihood of political extraction. The corruption variables are standardized so to have a mean of zero and a standard deviation of one.

Country	Number of firms	Cash/ Total assets	KKM Corruption	ICRG Corruption	ICRG Investment profile	Neumann Corruption	Country	Number of firms	Cash/ Total assets	KKM Corruption	ICRG Corruption	ICRG Investment profile	Neumann Corruption
Anguilla	1	0.082	-0.831				Lithuania	40	0.066	0.162	0.211	-0.562	-1.257
Argentina	83	0.077	0.779	0.211	1.430	0.504	Luxembourg	24	0.191	-1.400	-1.711	-1.009	-1.257
Australia	1,349	0.276	-1.525	-1.711	-1.009	-1.257	Macedonia	2	0.018	0.789			1.091
Austria	66	0.133	-1.545	-1.711	-1.009	-1.257	Malaysia	867	0.125	0.133	0.275	0.331	-0.083
Bahamas	2	0.020	-0.899	-0.942	-0.786		Malta	1	0.062	-0.629	-0.558	-0.786	
Bahrain	15	0.178	-0.243	0.595	-0.786		Marshall Islands	6	0.064	0.798			
Bangladesh	2	0.037	1.560	0.980	1.243	1.678	Mauritius	10	0.069	0.066			
Barbados	3	0.101	-0.793				Mexico	107	0.089	0.760	0.595	-0.488	0.504
Belgium	143	0.159	-1.034	-0.942	-0.786	-1.257	Morocco	38	0.084	0.480	0.211	0.331	1.091
Belize	1	0.083	0.605				Mozambique	1	0.064	0.962	0.980	0.555	
Bermuda	502	0.218	-0.831				Namibia	1	0.164	0.326	0.980	-0.116	-0.670
Bolivia	12	0.062	1.145	0.595	1.374	1.091	Netherlands	137	0.127	-1.545	-1.711	-1.009	-1.257
Bosnia and Herzegovina	1	0.012	0.615				Netherlands Antilles	4	0.239	-0.831			
Botswana	8	0.223	-0.686	-0.173	-0.786		New Zealand	106	0.135	-1.795	-2.096	-1.009	-1.257
Brazil	312	0.087	0.654	0.724	1.001	1.091	Nicaragua	3	0.035	0.972	0.211	0.480	
Bulgaria	126	0.049	0.384	0.595	-0.786	-0.083	Nigeria	13	0.104	1.560	1.108	2.174	1.678
Canada	986	0.231	-1.477	-1.743	-1.009	-1.257	Norway	301	0.205	-1.602	-1.711	-0.786	-1.257
Cayman Islands	369	0.288	-0.831				Oman	92	0.090	-0.291	0.211	-0.786	
Chile	164	0.065	-0.928	-1.327	-0.786	-0.670	Pakistan	155	0.081	1.367	0.980	2.118	1.678
China	1,386	0.150	1.030	0.595	1.132	1.091	Panama	6	0.057	0.634	0.595	-0.116	
Colombia	56	0.090	0.586	-0.173	0.480	1.091	Papua New Guinea	6	0.111	1.454	1.364	0.964	
Costa Rica	9	0.081	-0.002	0.467	0.555	-0.083	Paraguay	3	0.035	1.560	1.364	0.555	1.091
Croatia	206	0.021	0.278	0.211	0.108	-0.083	Peru	115	0.069	0.846	0.211	0.778	0.504

Table 1. Continued.

Country	Number of firms	Cash/ Total assets	KKM Corruption	ICRG Corruption	ICRG Investment profile	Neumann Corruption	Country	Number of firms	Cash/ Total assets	KKM Corruption	ICRG Corruption	ICRG Investment profile	Neumann Corruption
Cyprus	2	0.189	-0.301	-0.942	-1.009		Philippines	146	0.130	0.943	0.595	0.220	1.678
Czech Republic	69	0.124	-0.031	0.211	-0.786	-0.083	Poland	192	0.100	0.210	0.499	-0.786	-0.083
Denmark	139	0.183	-1.786	-2.096	-0.786	-1.257	Portugal	70	0.062	-0.735	-0.942	-1.009	-1.257
Ecuador	21	0.118	1.145	-0.173	1.895	-0.083	Qatar	16	0.218	-0.417	0.211	-0.116	
Egypt	471	0.119	0.798	0.980	1.448	1.091	Romania	61	0.052	0.605	0.211	0.331	0.504
El Salvador	4	0.116	0.712	0.211	0.778		Russian Federation	533	0.044	1.126	0.595	0.331	1.091
Estonia	18	0.108	-0.474	-0.173	-0.116	-0.670	Saudi Arabia	67	0.131	0.143	0.595	-0.562	1.091
Finland	135	0.151	-1.950	-2.480	-1.009	-1.257	Singapore	537	0.187	-1.795	-1.327	-1.009	-1.257
France	799	0.155	-0.976	-0.558	-1.009	-1.257	Slovakia	134	0.086	-0.041	0.211	-0.730	-0.083
Gabon	1	0.092	1.010	1.364	0.741	0.504	Slovenia	7	0.053	-0.436	-0.173	-0.562	-0.670
Germany	677	0.170	-1.477	-1.359	-1.009	-1.257	South Africa	194	0.148	-0.166	0.467	-0.562	-1.257
Greece	251	0.063	-0.012	0.083	-0.264	0.504	Spain	183	0.124	-0.918	-0.942	-1.009	0.504
Guatemala	2	0.069	1.155	0.980	-0.116		Sri Lanka	67	0.075	0.663	0.211	1.039	
Hong Kong	116	0.190	-1.255	-0.942	-1.009	-1.257	Sudan	1	0.147	1.714	1.364	1.001	
Hungary	29	0.083	-0.204	-0.173	-0.823	0.504	Sweden	437	0.193	-1.651	-1.711	-1.009	-1.257
Iceland	28	0.052	-2.036	-2.096	-0.562		Switzerland	180	0.162	-1.680	-1.327	-0.991	-1.257
India	1,236	0.077	0.692	0.211	0.182	1.091	Taiwan	1,372	0.155	-0.243	-0.173	-0.786	0.504
Indonesia	239	0.092	1.213	1.364	1.337	1.678	Thailand	377	0.098	0.586	0.980	0.555	1.678
Ireland	67	0.240	-1.255	-0.686	-1.009	-1.257	Trinidad and Tobago	7	0.096	0.355	0.595	-0.786	
Israel	133	0.312	-0.368	-0.173	-0.116	-0.670	Tunisia	20	0.090	0.345	0.595	0.592	-0.083
Italy	251	0.114	-0.021	0.211	-1.009	0.504	Turkey	55	0.115	0.422	0.211	0.778	-0.083
Jamaica	21	0.146	0.827	0.980	0.313		Ukraine	25	0.058	0.972	0.820	0.908	-0.083
Japan	3,653	0.176	-0.831	-0.558	-0.786	-1.257	United Arab Emirates	36	0.240	-0.706	0.595	-0.786	1.091
Jordan	104	0.102	0.056	-0.173	-0.041	-0.083	United Kingdom	1,928	0.214	-1.496	-1.327	-1.009	-1.257
Kazakhstan	1	0.022	1.280	0.980	0.704	-0.083	USA	5,181	0.240	-1.140	-1.711	-0.860	-1.257
Kenya	8	0.147	1.338	1.396	0.108	0.504	Uruguay	2	0.011	-0.417	-0.173	0.071	-0.083
Korea (Rep.)	1,465	0.104	-0.079	0.211	-0.153	0.504	Venezuela	22	0.129	1.348	0.980	2.733	1.091
Kuwait	32	0.255	-0.426	0.211	-0.786	0.504	Vietnam	102	0.111	1.107	0.980	0.555	
Latvia	34	0.102	0.017	0.595	-0.562	-0.083	Virgin Islands	14	0.334	-0.378			
Lebanon	1	0.079	0.740	1.364	0.480		Zambia	2	0.062	1.155	-0.173	1.430	1.091
Liberia	2	0.115	1.454	0.595	2.118	1.091	Zimbabwe	2	0.168	1.608	2.133	3.682	0.504
Liechtenstein	1	0.281	-0.831										

Table 2. Cash holdings and the potential for political extraction: Firm-level regression results with 2005 data.

This table presents ordinary least squares regressions in which the dependent variable is the ratio of cash to total assets. The firm is the unit of observation. All variables other than Ownership concentration, Cash/Total assets and Debt/Total assets are trimmed at the top/bottom 1%. For Ownership concentration, Cash/Total assets and Debt/Total assets observations below 0 or above 1 are excluded. Financial firms (SIC 6000-6999) are excluded. All regressions include 3-digit SIC industry indicators. Higher values of KKM Corruption, ICRG Corruption, ICRG Investment profile, and Neumann Corruption denote a greater likelihood of political extraction. Coefficients are standardized. P-values, reported in parentheses below the coefficients, are based on standard errors adjusted for heteroskedasticity and clustering at the country/industry level.

	Panel A			
	(1)	(2)	(3)	(4)
KKM Corruption	-0.032			
	(0.000)			
ICRG Corruption		-0.032		
		(0.000)		
ICRG Investment profile			-0.022	
			(0.000)	
Neumann Corruption				-0.032
				(0.000)
Intercept	0.172	0.172	0.169	0.172
	(0.000)	(0.000)	(0.000)	(0.000)
Number of observations	29,820	28,906	28,906	28,523
Number of countries	109	97	97	78
R-squared (Adjusted)	17.47%	18.02%	16.96%	18.06%

Table 2. Continued.

	Panel B			
	(1)	(2)	(3)	(4)
KKM Corruption	-0.009			
	(0.001)			
ICRG Corruption		-0.013		
		(0.000)		
ICRG Investment profile			-0.008	
			(0.004)	
Neumann Corruption				-0.012
				(0.000)
Ownership concentration	-0.007	-0.008	-0.007	-0.007
	(0.000)	(0.000)	(0.000)	(0.000)
Sales growth	0.006	0.006	0.006	0.006
	(0.003)	(0.003)	(0.003)	(0.002)
Debt/Total assets	-0.037	-0.038	-0.037	-0.037
	(0.000)	(0.000)	(0.000)	(0.000)
Cash flow/Total assets	0.012	0.012	0.012	0.012
	(0.258)	(0.241)	(0.264)	(0.255)
Delta NWC/Total assets	-0.491	-0.489	-0.490	-0.488
	(0.000)	(0.000)	(0.000)	(0.000)
Investments/Total assets	-0.080	-0.080	-0.080	-0.080
	(0.000)	(0.000)	(0.000)	(0.000)
UK legal origin	0.012	0.008	0.014	0.012
	(0.051)	(0.166)	(0.028)	(0.057)
Ln (Total assets)	-0.009	-0.010	-0.009	-0.010
	(0.000)	(0.000)	(0.000)	(0.000)
Private credit/GDP	0.015	0.014	0.017	0.014
	(0.000)	(0.000)	(0.000)	(0.000)
Intercept	0.151	0.155	0.150	0.153
	(0.000)	(0.000)	(0.000)	(0.000)
Number of observations	17,264	17,263	17,263	17,145
Number of countries	84	82	82	70
R-squared (Adjusted)	27.01%	27.17%	26.98%	27.21%

Table 3. Cash holdings and the potential for political extraction: Country-level regression results with 2005 data.

This table presents ordinary least squares regressions in which the dependent variable is the ratio of cash to total assets. Firm-level data are averaged for each country so that the country average is the unit of observation. All variables other than Ownership concentration, Cash/Total assets and Debt/Total assets are trimmed at the top/bottom 1%. For Ownership concentration, Cash/Total assets and Debt/Total assets observations below 0 or above 1 are excluded. Financial firms (SIC 6000-6999) are excluded. All regressions include 3-digit SIC industry indicators. Higher values of KKM Corruption, ICRG Corruption, ICRG Investment profile, and Neumann Corruption denote a greater likelihood of political extraction. Coefficients are standardized. P-values, reported in parentheses below the coefficients, are based on standard errors adjusted for heteroskedasticity and clustering at the country/industry level.

	Panel A			
	(1)	(2)	(3)	(4)
KKM Corruption	-0.035			
	(0.000)			
ICRG Corruption		-0.023		
		(0.000)		
ICRG Investment profile			-0.021	
			(0.003)	
Neumann Corruption				-0.029
				(0.000)
Intercept	0.120	0.119	0.118	0.121
	(0.000)	(0.000)	(0.000)	(0.000)
Number of observations	109	97	97	78
R-squared (Adjusted)	24.47%	13.70%	10.97%	21.90%

Table 3. Continued.

	Panel B			
	(1)	(2)	(3)	(4)
KKM Corruption	-0.023			
	(0.000)			
ICRG Corruption		-0.015		
		(0.012)		
ICRG Investment profile			-0.010	
			(0.080)	
Neumann Corruption				-0.014
				(0.012)
Ownership concentration	-0.007	-0.006	-0.003	-0.006
	(0.159)	(0.298)	(0.517)	(0.382)
Sales growth	0.011	0.010	0.012	0.010
	(0.102)	(0.172)	(0.091)	(0.131)
Debt/Total assets	-0.018	-0.017	-0.015	-0.019
	(0.000)	(0.002)	(0.008)	(0.035)
Cash flow/Total assets	0.012	0.009	0.005	0.018
	(0.090)	(0.238)	(0.555)	(0.132)
Delta NWC/Total assets	-0.013	-0.005	-0.001	-0.013
	(0.198)	(0.668)	(0.899)	(0.431)
Investments/Total assets	-0.035	-0.035	-0.031	-0.057
	(0.000)	(0.002)	(0.007)	(0.013)
UK legal origin	0.033	0.035	0.031	0.036
	(0.003)	(0.002)	(0.006)	(0.006)
Ln (Total assets)	0.019	0.017	0.019	0.017
	(0.001)	(0.004)	(0.001)	(0.011)
Private credit/GDP	0.002	0.009	0.011	0.007
	(0.744)	(0.159)	(0.062)	(0.255)
Intercept	0.108	0.108	0.108	0.110
	(0.000)	(0.000)	(0.000)	(0.000)
Number of observations	84	82	82	70
R-squared (Adjusted)	64.91%	62.57%	61.27%	68.19%

Table 4. Investments and the potential for political extraction: Firm-level regression results with 2005 data.

This table presents ordinary least squares regressions in which the dependent variable is the ratio of (Net capital expenditures $\pm$ Change in inventory + Dividends)$_{t+1}$/ Sales$_t$. The firm is the unit of observation. All variables other than Ownership concentration, Cash/Total assets and Debt/Total assets are trimmed at the top/bottom 1%. For Ownership concentration, Cash/Total assets and Debt/Total assets, observations below 0 or above 1 are excluded. Financial firms (SIC 6000-6999) are excluded. All regressions include 3-digit SIC industry indicators. Higher values of KKM Corruption, ICRG Corruption, ICRG Investment profile, and Neumann Corruption denote a greater likelihood of political extraction. Coefficients are standardized. P-values, reported in parentheses below the coefficients, are based on standard errors adjusted for heteroskedasticity and clustering at the country/industry level.

	(1)	(2)	(3)	(4)
KKM Corruption	0.069			
	(0.000)			
ICRG Corruption		0.080		
		(0.000)		
ICRG Investment profile			0.073	
			(0.000)	
Neumann Corruption				0.076
				(0.000)
Ownership concentration	0.023	0.024	0.019	0.025
	(0.051)	(0.039)	(0.095)	(0.036)
Sales growth	-0.051	-0.049	-0.052	-0.051
	(0.005)	(0.006)	(0.004)	(0.005)
Debt/Total assets	-0.003	-0.001	-0.002	0.004
	(0.858)	(0.954)	(0.913)	(0.803)
Cash flow/Total assets	0.578	0.575	0.577	0.576
	(0.000)	(0.000)	(0.000)	(0.000)
Delta NWC/Total assets	-0.843	-0.857	-0.819	-0.912
	(0.026)	(0.023)	(0.029)	(0.015)
UK legal origin	-0.072	-0.057	-0.077	-0.070
	(0.008)	(0.026)	(0.003)	(0.009)
Ln (Total assets)	0.078	0.082	0.080	0.077
	(0.000)	(0.000)	(0.000)	(0.000)
Private credit/GDP	0.036	0.049	0.026	0.045
	(0.017)	(0.003)	(0.066)	(0.005)
Intercept	-0.045	-0.058	-0.044	-0.053
	(0.046)	(0.011)	(0.049)	(0.020)
Number of observations	11,933	11,932	11,932	11,837
Number of countries	71	70	70	63
R-squared (Adjusted)	17.72%	17.77%	17.78%	17.90%

Table 5. Employment levels and the potential for political extraction: Firm-level regression results with 2005 data.

This table presents ordinary least squares regressions in which the dependent variable is the ratio of number of employees to total assets (×1,000). The firm is the unit of observation. All variables other than Ownership concentration, Cash/Total assets and Debt/Total assets are trimmed at the top/bottom 1%. For Ownership concentration, Cash/Total assets and Debt/Total assets observations below 0 or above 1 are excluded. Financial firms (SIC 6000-6999) are excluded. All regressions include 3-digit SIC industry indicators. Higher values of KKM Corruption, ICRG Corruption, ICRG Investment profile, and Neumann Corruption denote a greater likelihood of political extraction. Coefficients are standardized. P-values, reported in parentheses below the coefficients, are based on standard errors adjusted for heteroskedasticity and clustering at the country/industry level.

	(1)	(2)	(3)	(4)
KKM Corruption	-1.164			
	(0.000)			
ICRG Corruption		-1.449		
		(0.000)		
ICRG Investment profile			-1.305	
			(0.000)	
Neumann Corruption				-0.906
				(0.000)
Ownership concentration	0.396	0.335	0.408	0.470
	(0.000)	(0.000)	(0.000)	(0.000)
Sales growth	-0.263	-0.287	-0.256	-0.272
	(0.000)	(0.000)	(0.000)	(0.000)
Debt/Total assets	-0.045	-0.077	-0.039	-0.035
	(0.507)	(0.260)	(0.568)	(0.614)
Cash flow/Total assets	0.266	0.296	0.267	0.293
	(0.008)	(0.004)	(0.009)	(0.004)
Delta NWC/Total assets	-0.395	0.048	-0.414	-0.422
	(0.835)	(0.980)	(0.828)	(0.825)
Investments/Total assets	0.429	0.440	0.451	0.438
	(0.002)	(0.001)	(0.001)	(0.001)
UK legal origin	2.051	1.736	2.122	2.190
	(0.000)	(0.000)	(0.000)	(0.000)
Ln (Total assets)	-1.312	-1.352	-1.332	-1.371
	(0.000)	(0.000)	(0.000)	(0.000)
Private credit/GDP	-0.004	-0.254	0.212	-0.082
	(0.979)	(0.057)	(0.138)	(0.547)
LN (GDP per-capita)	-4.262	-4.402	-4.558	-3.935
	(0.000)	(0.000)	(0.000)	(0.000)
Intercept	6.680	6.997	6.692	6.607
	(0.000)	(0.000)	(0.000)	(0.000)

Number of observations	11,919	11,919	11,919	11,902
Number of countries	63	63	63	58
R-squared (Adjusted)	27.60%	28.08%	27.47%	27.52%

Table 6. Cash holdings and the potential for political extraction: Firm-level regression results with 2002-04 and 2006 data

This table presents ordinary least squares regressions in which the dependent variable is the ratio of cash to total assets. The firm is the unit of observation. Variables are measured as of the end of 2006 in regression 1; as of the end of 2004 in the regression 2; as of the end of 2003 in regression 3; and as of 2002 in regression 4. All variables other than Ownership concentration, Cash/Total assets and Debt/Total assets are trimmed at the top/bottom 1%. For Ownership concentration, Cash/Total assets and Debt/Total assets observations below 0 or above 1 are excluded. Financial firms (SIC 6000-6999) are excluded. All regressions include 3-digit SIC industry indicators. Higher values of KKM Corruption denote a greater likelihood of political extraction. Coefficients are standardized. P-values, reported in parentheses below the coefficients, are based on standard errors adjusted for heteroskedasticity and clustering at the country/industry level.

	(1)	(2)	(3)	(4)
Year	2006	2004	2003	2002
KKM Corruption	-0.011	-0.009	-0.006	-0.006
	(0.000)	(0.002)	(0.027)	(0.026)
Ownership concentration	-0.006	-0.008	-0.007	-0.006
	(0.004)	(0.000)	(0.000)	(0.000)
Sales growth	0.008	0.008	0.007	0.003
	(0.000)	(0.000)	(0.000)	(0.075)
Debt/Total assets	-0.036	-0.035	-0.040	-0.047
	(0.000)	(0.000)	(0.000)	(0.000)
Cash flow/Total assets	0.036	0.027	0.023	-0.020
	(0.000)	(0.011)	(0.007)	(0.002)
Delta NWC/Total assets	-0.266	-0.038	-0.221	-0.033
	(0.000)	(0.000)	(0.000)	(0.586)
Investments/Total assets	-0.092	-0.068	-0.453	-0.007
	(0.000)	(0.000)	(0.000)	(0.457)
UK legal origin	0.015	0.006	0.008	0.007
	(0.049)	(0.373)	(0.221)	(0.241)
Ln (Total assets)	-0.011	-0.005	-0.004	-0.003
	(0.000)	(0.008)	(0.091)	(0.181)
Private credit/GDP	0.013	0.019	0.020	0.021
	(0.000)	(0.000)	(0.000)	(0.000)
Intercept	0.151	0.145	0.142	0.136
	(0.000)	(0.000)	(0.000)	(0.000)
Number of observations	12,908	15,327	15,327	14,007
Number of countries	73	85	85	84
R-squared (Adjusted)	30.95%	29.51%	28.16%	25.90%

Table 7. Cash holdings and the potential for political extraction: Instrumental variable regressions with 2005 data.

This table presents instrumental variable (IV) regressions in which the dependent variable is the ratio of cash to total assets. The firm is the unit of observation. KKM Corruption is instrumented using different IVs in regressions (1) and (2). The first is an index of Ethnolinguistic fractionalization. The second is the Latitude of the country from the *CIA*'s *World Factbook*. All variables other than Ownership concentration, Cash/Total assets and Debt/Total assets are trimmed at the top/bottom 1%. For Ownership concentration, Cash/Total assets and Debt/Total assets observations below 0 or above 1 are excluded. Financial firms (SIC 6000-6999) are excluded. Higher values of KKM Corruption denote a greater likelihood of political extraction. Coefficients are standardized.

	(1)	(2)
Instrumental variable	Ethnolinguistic fractionalization	Latitude
KKM Corruption	-0.011	-0.023
	(0.000)	(0.000)
Ownership concentration	-0.009	-0.009
	(0.000)	(0.000)
Sales growth	0.008	0.009
	(0.000)	(0.000)
Debt/Total assets	-0.043	-0.043
	(0.000)	(0.000)
Cash flow/Total assets	0.003	0.003
	(0.237)	(0.121)
Delta NWC/Total assets	-0.464	-0.479
	(0.000)	(0.000)
Investments/Total assets	-0.082	-0.081
	(0.000)	(0.000)
UK legal origin	0.016	0.011
	(0.000)	(0.000)
Ln (Total assets)	-0.018	-0.017
	(0.000)	(0.000)
Private credit/GDP	0.020	0.017
	(0.000)	(0.000)
Intercept	0.152	0.155
	(0.000)	(0.000)
Number of observations	16,931	17,291

Table 8. Cash holdings and the potential for political extraction: Tobit and logistic transformations with 2005 data.

In regressions (1)-(4) we use a two-boundary Tobit approach in which the dependent variable, the ratio of cash to total assets, is censored at 0 and 1. P-values for the Tobit regressions, reported in parentheses below the coefficients, are based on standard errors that are bootstrapped based on 1,000 repetitions to adjust for heteroskedasticity. In regressions (5)-(8), we use a logistic transformation, where the dependent variable, z_i, is computed as $z_i = \ln\left(\frac{y_i}{1-y_i}\right)$, where y_i is the ratio of cash to total assets. By construction $-\infty < z_i < \infty$. The new regressions are then estimated using ordinary least squares. P-values for the regressions with logistic transformations, reported in parentheses below the coefficients, are based on standard errors adjusted for heteroskedasticity and clustering at the country/industry level. All variables other than Ownership concentration, Cash/Total assets and Debt/Total assets are trimmed at the top/bottom 1%. For Ownership concentration, Cash/Total assets and Debt/Total assets observations below 0 or above 1 are excluded. Financial firms (SIC 6000-6999) are excluded. Regressions (5)-(8) include 3-digit SIC industry indicators. Higher values of KKM Corruption, ICRG Corruption, ICRG Investment profile, and Neumann Corruption denote a greater likelihood of political extraction. Coefficients are standardized.

Table 8. Continued.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimation technique:			Tobit			Logistic transformation		
KKM corruption	-0.015				-0.051			
	(0.000)				(0.009)			
ICRG corruption		-0.022				-0.045		
		(0.000)				(0.048)		
ICRG Investment profile			-0.014				-0.038	
			(0.000)				(0.064)	
Neumann Corruption				-0.017				-0.078
				(0.000)				(0.000)
Ownership concentration	-0.009	-0.009	-0.008	-0.009	-0.100	-0.101	-0.099	-0.099
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Sales growth	0.009	0.008	0.009	0.009	0.043	0.042	0.043	0.045
	(0.000)	(0.000)	(0.000)	(0.000)	(0.010)	(0.013)	(0.011)	(0.008)
Debt/Total assets	-0.043	-0.043	-0.043	-0.042	-0.389	-0.390	-0.389	-0.387
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cash flow/Total assets	0.003	0.004	0.003	0.004	0.158	0.159	0.157	0.157
	(0.557)	(0.480)	(0.580)	(0.524)	(0.020)	(0.019)	(0.021)	(0.020)
Delta NWC/Total assets	-0.475	-0.473	-0.475	-0.474	-3.382	-3.368	-3.377	-3.358
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Investments/Total assets	-0.082	-0.082	-0.082	-0.082	-0.524	-0.526	-0.524	-0.519
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
UK legal origin	0.015	0.007	0.017	0.014	-0.117	-0.123	-0.106	-0.127
	(0.000)	(0.009)	(0.000)	(0.000)	(0.007)	(0.002)	(0.015)	(0.003)
Ln (Total assets)	-0.017	-0.018	-0.017	-0.018	0.013	0.012	0.013	0.004
	(0.000)	(0.000)	(0.000)	(0.000)	(0.445)	(0.459)	(0.442)	(0.792)
Private credit/GDP	0.018	0.015	0.021	0.017	0.196	0.194	0.205	0.187
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Intercept	0.153	0.158	0.151	0.154	-2.307	-2.301	-2.315	-2.295
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Industry indicators	No	No	No	No	Yes	Yes	Yes	Yes
Sigma	0.150	0.150	0.150	0.150				
	(0.153)	(0.152)	(0.153)	(0.153)				
Number of observations	17,291	17,290	17,290	17,172	17,116	17,115	17,115	16,998
Prob>Chi2	0.00%	0.00%	0.00%	0.00%				
R-squared (Adjusted)					24.17%	24.14%	24.14%	24.25%