**How do Institutional Investors Dictate Corporate Cash Holdings in a Financially Constrained Environment? [[1]](#footnote-1)**

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**Abstract**

Institutional investors use voting power to influence firms’ financial decisions, such as their inclination towards large cash during heightened economic uncertainty and slack resource environment. This paper exploits agency theory and institutional channel in developing a theory-driven empirical apparatus to provide direct evidence that a country’s political climate is instrumental in determining the extent financial constraints are an effective moderating tool for negotiating an optimal contract between the power of institutional investors and firms’ cash holdings. In our empirical narrative we assert the punctuating role of legal frameworks on institutional investors’ actual influences on firms’ financial decision making. By using a sample of 30000 firms from selected emerging and developed economies over a period of two decades, a suit of endogeneity-mitigated dynamic panel regressions helps elicit a strong negative relationship between institutional ownership and corporate cash holdings. Our results indicate that institutional investors motivate firms to downsize excess cash. Furthermore, we document that financially constrained firms tend to hold more cash in both emerging and developed countries whereas firms in common law countries (both developed and emerging) prefer less cash as compared to firms in civil law countries.

**Keywords**: *Corporate cash holdings; Institutional investor; Financial constraints; Common and civil law countries*

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1. **Introduction**

Institutional investors play a major role in firms’ financial decisions, such as the amount of cash to hold during uncertain/stable times. The predictive strategies of firms, both regarding their survival and long-term growth, is often at odds with the dominated short-term objectives of the profit-veering institutional investors.[[2]](#footnote-2) An optimal ‘contract’ between the two parties is also governed by the institution’s legal framework.[[3]](#footnote-3) Eventually, the acceptable equilibrium outcome is a product of both parties’ uncertainty-smoothing strategy that may ensure high returns of institutional investors as well as persistence of growth gains for firms, Ceteris Paribas, the legal constraints are non-interfering. This paper builds on the above premises by exploiting agency theory and an institutional framework to argue that a country’s political climate determines the extent financial constraints render moderating effects while negotiating an optimal contract between firms’ propensity to cash holdings and the power of institutional investors. Endogeneity mitigated empirical scrutiny for firms in both emerging and developed economies provide robust evidence that institutional investors influence firms to downsize cash holdings, but the results differ between common and civil law countries.

In his seminal paper, Jensen (1986) proposes that insiders of a firm depict an incentive to misappropriate resources of the firm including cash, for their personal benefit at the cost of shareholder's value creation. He argues that the major source of conflict between managers and shareholders is the excess cash holdings of the firm. On the one hand, managers have higher incentives to maintain a large cash balance as it helps them maintain enough liquidity to fund positive NPV projects that may arise in the future, and to avoid monitoring and scrutiny of the market. On the other hand, since the interest earned on cash is also taxed at the marginal tax rate of the firm, shareholders might induce the managers to reduce excess cash holdings to avoid paying taxes on interest. These contradicting intentions of the two important stakeholders lead to agency conflict. Prior studies indicate that agency conflict can be moderated or reduced to a large extent, if not entirely resolved, by efficient monitoring by various categories of shareholders in the firm (see Ameer, 2010; Nikolov and Whited, 2014; Dittmar and Mahr-Smith, 2007). Institutional investors being one of the dominant shareholders in the firms present a unique opportunity to investigate their role in mitigating agency conflict arising out of cash holdings of firms.

By virtue of their size and expertise, institutional investors exert greater influence on firm’s decision-making process as compared to smaller investors. Prior studies on the role and behaviour of institutional investors put forward two opposing views – *monitoring* and *short-termism* (Callen and Fang, 2013). The monitoring role of investors indicate focus on long-term value creation for shareholders and they actively engage with the management of the firm to achieve this objective (Shleifer & Vishny 1986, 1997). They argue that institutional investors have incentive to collect information and monitor management because they reap large benefits as compared to smaller investors. Further, they tend to monitor and discipline managers to ensure that the firm’s investment strategy is consistent with the objective of maximizing long-term value, rather than meeting short term earnings goals. Consistent with this monitoring view of institutional investors, empirical studies provide evidence on a variety of benefits from institutional ownership like CEO turnover (Helwege et al., 2012), , firm performance (Elyasiani and Jia, 2008), corporate governance (Aggarwal et al., 2011), executive compensation (Janakiraman, Radhakrishnan, & Tsang, 2010; Zheng, 2010). The short-termism perspective argue that institutional investors are transient and are interested in short-term performance of the firm and fail to act as monitor (Bushee, 1998; Cheng et al., 2010; Yudan, 2010; Manconi, 2012). In this paper, we investigate the monitoring role of the institutional investors with respect to corporate cash holdings and we attempt to enhance our understanding of the impact of country-level moderators on the relationship between institutional investors and cash holdings.

Recent studies have explored the impact of large investors on corporate cash holdings. For instance, Chen et al. (2018) find a positive relationship between state ownership and corporate cash holdings, suggesting that as state ownership increases, the value of cash holdings declines in countries with weak institutional frameworks. Investors tend to discount the value of cash in such settings due to the heightened risks associated with these firms, underscoring the importance of accounting for a country’s institutional environment when analyzing agency conflicts. Similarly, Gupta and Bedi (2020) find a negative relationship between promoter ownership and cash holdings in Indian firms, arguing that larger and more diverse shareholders should play a central role in preventing excess cash accumulation in these companies.

Another critical issue in cash management concerns determining the optimal level of cash holdings. Prior literature provides evidence that holding either excess or insufficient cash can erode shareholder value over time (Dittmar and Mahrt-Smith, 2007; Harford et al., 2008; Kalcheva and Lins, 2007; Miller and Orr, 1966; Opler et al., 1999). Excess cash is particularly problematic, as it becomes more susceptible to expropriation by managers or majority shareholders. Johnson et al. (2000) introduced the term "tunneling" to describe the exploitation of minority shareholders by majority shareholders who divert assets, including cash, for personal gain. This issue is especially pronounced in countries with weaker shareholder protections, where greater access to cash by controlling shareholders correlates with reduced firm value (Kalcheva and Lins, 2007).While the roles of retail investors in mitigating the agency problem are well researched and documented (Chen et al., 2007; Ferreira et al., 2010; Aggarwal et al., 2011), the role of institutional investors is still unexplored, especially in emerging countries which have a different institutional mechanism, political and business environment as compared to developed countries. Firth et al. (2016) provide evidence that institutional investors in China have substantially helped in improving efficiency, corporate governance, and, consequently, the firm value. Ameer (2007) and Bekaert and Harvey (2000) find that liquidity and cost of capital in emerging markets have substantially improved because of the advent of institutional investors in these countries. Ameer (2010) further argues that institutional investors are more methodical and better at evaluating managerial performance than ordinary investors. Given the growing importance and relevance of institutional investors in improving firm efficiency, we examine their role in corporate cash holdings.

In addition, we investigate how financial constraints moderate the effect of institutional investors on cash holdings by firms. It is well documented that financial constraint faced by a firm significantly affects the corporate decision-making process. For instance, Faulkender and Wang (2006) provide evidence that the marginal value of cash declines for firms with high cash holdings and easy access to capital markets (financially unconstrained). Denis and Sibilkov (2010) find that the value of cash is higher for financially constrained firms than for financially unconstrained firms. Financially constrained firms have limited access to the capital market, which substantially restricts their ability to raise capital. Consequently, managers of these firms hold precautionary cash to deal with future exigencies. Opler et al. (1999) and Almeida et al. (2004) argue that shareholders of financially constrained firms tend to be less concerned about the managers holding more cash because these firms may invest in positive NPV projects without worrying about the availability of funds. Using a wide sample of firms from developed and emerging countries, we examine the relationship between institutional ownership and corporate cash holdings and how this relationship changes for financially constrained and unconstrained firms. Most emerging countries are also characterized by weak investor shareholder protection apart from less developed financial markets. This leads the firms in these countries to hold more cash because it is easier for the entrenched managers to misappropriate cash for their own benefits (Dittmar et al., 2003; Kalcheva and Lins, 2007).

Our study contributes to the literature in the following ways. Firstly, we expand the extant scope of cash management policies of firms by including the moderating role of institutional investors. Studies so far have considered corporate governance, country-level institutional factors like shareholders’ protection, and legal framework to explain the behavior of firms while holding cash. We exclusively study the role of institutional investors, who have become one of the most important watchdogs in improving the mechanism of how a firm operates. Secondly, we consider a wide sample from developed and emerging markets to study this phenomenon. These sets of countries vary widely in their corporate governance, protection framework of minority shareholders, and uncertainties in their political and economic environment. As highlighted by Cheng et al. (2018), it is important that we consider a country’s institutional environment while examining agency conflicts. This way, this paper enhances our understanding of the roles played by a country’s environment in corporate decision-making process.

Thirdly, we study the moderating effect of financial constraints on the relationship between institutional investors and corporate cash holdings. This is important as we get an insight into the firm's cash management behavior when it is financially constrained as well as unconstrained in the presence of institutional investors. Our results indicate that cash holdings and institutional ownership have a negative and significant relationship in both emerging and developed markets, indicating that institutional investors induce the firms to reduce the excess cash. We also find that financially constrained firms tend to hold more cash in both emerging and developed countries and firms in common law countries (both developed and emerging) hold less cash as compared to firms in civil law countries.

This rest of the paper is organized as follows. In section 2, we develop our hypotheses by drawing on the extant body of literature on the subject. Section 3 is devoted to discussion of data architecture and methodology. Section 4 provides a critical discussion of the empirical results. Finally, Section 5 concludes the paper.

1. **Literature and hypotheses development**

Excess cash balances held by firms can lead to agency problems, as they grant entrenched managers easy access to resources that may be used for personal gain rather than for maximizing shareholder value, thereby disadvantaging minority shareholders (Kalcheva and Lins, 2007; Harford et al., 2008; Nikolov and Whited, 2014). The presence of institutional ownership can help mitigate these agency issues, as previous research highlights that corporate governance (Dittmar and Mahrt-Smith, 2007; Harford et al., 2008; Aggarwal et al., 2011) and state ownership (Chen et al., 2018) are effective in addressing such conflicts. Following monitoring hypothesis, institutional investors are uniquely suited to manage and monitor firms effectively, thereby reducing agency problems arising from excess cash holdings (Stulz, 2005; Huang and Zhu, 2015). Their resources, expertise, and significant stakes in firms enable them to exert influence on management, aligning managerial incentives with shareholder interests. However, this hypothesis presents two contrasting perspectives - value addition through efficient capital allocation in which institutional investors, particularly those with long-term horizons, can advocate for efficient capital allocation, pressuring managers to invest excess cash in profitable opportunities or return it to shareholders.

This proactive stance can maximize firm value, as documented by Ilyas et al. (2021), who find that foreign institutional investors have a positive impact on the value of excess cash holdings in Pakistani firms, unlike domestic investors and on the other hand, Jensen (1986) posits that in the absence of suitable investment opportunities, managers may seek to retain excess cash, using it to strengthen their own positions rather than increasing shareholder wealth. This can lead to value-destroying activities, as managers may prioritize empire-building or unnecessary acquisitions over shareholder returns. The impact of institutional ownership on cash management may also vary by investor type. For example, foreign institutional investors might place stronger demands for value creation and transparency than domestic institutions due to stricter regulatory oversight and accountability to international stakeholders. This variation aligns with findings that foreign institutional investors play a more pronounced role in enhancing the value of excess cash (Ilyas et al., 2021), suggesting that the effect of institutional monitoring depends on investor characteristics.

In summary, while institutional investors have the potential to mitigate agency problems associated with excess cash, their influence can be shaped by the availability of investment opportunities, the objectives of the firm’s managers, and the specific nature of the institutional ownership. This nuanced role underscores the importance of institutional composition and the need for a governance structure that incentivizes managers to prioritize shareholder value. Therefore, the institutional investors play a significant role in reducing the cash flow problem, by forcing the managers to reduce the firm's excess cash. Dittmar and Mahrt-Smith (2007), Harford et al. (2008) argue that when entrenched managers have excess cash at their disposal, they may invest it in value-destroying projects, thereby reducing the shareholder's value. Institutional investors may prevent these managers from investing money in value-destroying projects and may induce them to increase their cash holdings instead. These investors may induce firms to hold less cash or reduce excess cash balance by decreasing the cost of capital (Bekaert and Harvey, 2000) and increasing the availability of finance to the firms (Stulz, 1999).

In view of the above, we hypothesize the following:

***H1:******Institutional investors' ownership significantly affects corporate cash holdings****.*

In the past decade or so, researchers have recognized that the business environment in which a firm operates may affect its decision-making process. In this context, studies have increasingly focused on emerging and developed economies owing to their different business environments. While emerging markets are characterized by poor corporate governance, less protection for minority shareholders, financial constraints faced by firms, and less developed financial markets, the developed markets have fewer issues with these problems (Bekaert and Lundlblad, 2003). Against this backdrop, we argue that institutional investors may have different preferences for firms in emerging and developed economies. Agrawal et al. (2005) find that foreign capital significantly contributes to economic growth in countries with developing financial systems, and that emerging markets display considerable variation in both country-level and firm-level policies that can impact foreign investment flows. They further argue that institutional investors are not primarily drawn to emerging markets for higher returns; rather, they exhibit specific preferences when selecting firms in these markets for investment.

LaPorta et al. (2002) argue that it is critical to recognize the differences in the ownership structures across countries because these differences have a bearing on the power and incentives of the controlling shareholders to expropriate minority shareholders. In a recent study, Lee and Wang (2021) find that financially constrained firms hold more cash with increase in geopolitical risk. Lee and Park (2016) provide evidence that board governance mitigates agency concerns in cash holdings more significantly for financially less-constrained firms. This, however, will depend on the business environment in which a firm operates. In the study of Japanese firms, Nguyen and Rahman (2020) find that higher institutional ownership and lower cross-shareholdings are associated with higher cash balances and managers spend the cash quickly. Since past studies have highlighted the distinctively different business environment (which includes economic policies, political environment, etc.) of emerging markets than those of developed ones, we argue that institutional investors may induce the financially constrained firms in emerging markets to hold more cash to provide a cushion against increasing uncertainty in the existing business environment. On the other hand, the institutional investors may force the firms in developed markets to disgorge excess cash even if they are financially constrained. These firms can remove the constraints through effective corporate governance mechanisms that are relatively easier to implement in developed markets.

Accordingly, we hypothesize that:

***H1a: Institutional investors have positive (negative) relationship with cash holdings for financially constrained firms in emerging (developed) economies.***

Substantial efforts have been made in the literature to understand the role of a country’s environment on decision making process of firms located or operating from that country. With increased globalization and internationalization of the firms, a country’s environment plays a major role in a firm’s financial performance and managerial decision-making process. For instance, Dittmar et al. (2003) find that firms in countries with poor shareholder protection hold twice as much cash as compared to firms in countries with stronger shareholder protection. Some recent evidence suggests that corruption in a country significantly affects corporate cash holdings (Tran, 2020). Firms in countries with high corruption hold more cash and have higher sensitivity of cash flows. We argue that institutional investors often have significant influence on a country’s policy making and therefore are likely to wield pressure in the local government to act on corruption and accordingly lead the firms to reduce cash holdings.

Furthermore, the legal system of a country also plays an important role in a firm’s decision-making process. Common law countries offer better legal protection to the shareholders as compared to civil law countries (LaPorta et al., 1987, 2002). Within the legal system, emerging countries are more prone and sensitive to the role of institutional investors on cash holdings decision of the firms. In a recent study Duan et al. (2023) find that the improvement of the legal system moderates the impact of entrepreneur immigration on corporate cash holdings, deters their short-sighted tunneling, and motivates them to put more effort into long-term innovation. Das and Pathak (2021) find that firms operating in civil law systems hold significantly higher cash as compared to their peers from common law systems. Managers consider improvements in judicial efficiency as increasing the probability of bankruptcy and loss of their jobs, responding to this fear by hoarding extra cash as a buffer against bankruptcy (Shah and Shah, 2016). Emerging countries in civil law countries which are characterized by poor legal protection to shareholders are likely to hold more cash and are less likely to be moderated by the presence of institutional investors. On the contrary, the role of institutional investors in common or civil law developed countries may not be significant because these countries have well developed financial markets, less corruption and supportive business environment. Tran (2020) find that corruption is positively associated with both cash holdings and the cash flow sensitivity of cash. In a recent study, Jayakody (2023) find that firms located in states with higher corruption react to increases in local political uncertainty by increasing cash holdings more than those in less corrupt settings. Accordingly, we propose the following hypotheses:

***H2a: Institutional investors moderate the effect of corruption on cash holdings.***

***H2b: Institutional investors have asymmetric moderation effect of legal system on***

 ***cash holdings***

**3.** **Data and Methodology**

***3.1 Sample characteristics***

Our sample consists of unbalanced panel of 18,738 firms from 26 emerging countries and 30,716 firms from 17 developed countries observed for 19 fiscal years from 2001 to 2019. We refer to the country classification by the WEO, International Monetary Fund for country classification and sample selection. Our selection of the sample is motivated by the extensive coverage of global perspective which allows us to compare financial behaviours and firm strategies. Further, these countries provide a heterogeneity with respect to political stability, level of corruption and the extent of financial constraints. All financial data are collected from the Bloomberg database. These firms belong to 7 industries following the Bloomberg Industry classification. Table 1 (Panels A and B) shows the details of the sample firms. Table 1, Panel A shows the number of firms from each sample country, while Panel B shows the distribution of firms across different industries as per the Bloomberg Industry Classification.

**Table 1a: Sample classification by country**

|  |  |
| --- | --- |
| Emerging Economies | Developed Countries |
| Country | **Number of firms** | **Country** | **Number of firms** |
| Argentina | 64 | Canada | 3459 |
| Brazil | 373 | USA | 13011 |
| Chile | 128 | Belgium | 139 |
| Colombia | 45 | UK | 2198 |
| Mexico | 128 | Denmark | 213 |
| Peru | 103 | Finland | 157 |
| Czech Republic | 11 | Japan | 3695 |
| Egypt | 179 | New Zealand | 124 |
| Greece | 144 | Israel | 870 |
| Hungary | 28 | Italy | 403 |
| Poland | 626 | Netherlands | 142 |
| Qatar | 26 | Singapore | 544 |
| Russia | 744 | Hong Kong | 1972 |
| Saudi Arabia | 136 | Norway | 327 |
| UAE | 43 | Portugal | 42 |
| South Africa | 289 | Sweden | 772 |
| Turkey | 288 | Switzerland | 766 |
| China | 3845 | Total | 30716 |
| India | 4050 |  |  |
| Indonesia | 548 |  |  |
| Malaysia | 800 |  |  |
| South Korea | 2806 |  |  |
| Pakistan | 387 |  |  |
| Philippines | 171 |  |  |
| Taiwan | 2170 |  |  |
| Thailand | 595 |  |  |
| Total | **18738** |  |  |

**Table 1b: Sample classification by industries**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Emerging Economies | % of total | Developed Economies | % of total |
| Communication | 672 | 3.6% | 1499 | 4.9% |
| Consumer Discretionary | 3837 | 20.5% | 4171 | 13.6% |
| Consumer Staples | 4107 | 22% | 12577 | 41% |
| Health Care | 1261 | 6.8% | 2756 | 9% |
| Industrials | 3449 | 18.4% | 3055 | 10% |
| Materials | 2868 | 15.2% | 3550 | 11.6% |
| Technology | 2550 | 13.6% | 3108 | 10.1% |
| Total | 18738 | 100% | 30716 | 100% |

***3.2 Variables***

We collect all financial variables from the Bloomberg database. The variables and their definitions are provided in Appendix I. We measure financial constraint through SA\_Index (Hadlock and Pierce, 2010) and convert it into a dummy variable (1 if the SA\_Index is more than the median value and zero otherwise). Following Opler et al. (1999) and Bates, Kahle, and Stulz (2009), we include the firm characteristics that may affect the firm's cash holdings as control variables – cash flow from operations, plant, property, and equipment (PPE), sales growth, research, and development (R&D), return on assets (ROA) and leverage. We extract the scores of corruptions of each country in our sample from the Worldwide Governance Indicators database of the World Bank. Finally, we manually collect the data on the legal systems of a country from *worldpopulationreview.com*. The website shows the common law countries, and we consider the remaining countries in our sample as having civil law. According to the description on the website We segregate the common and civil law countries as belonging to emerging or developed economies. Then we code the country as having common law as 1, else 0.

* 1. ***Estimation strategy***

Following previous studies, we adopt the dynamic model of cash holdings in which it is assumed that adjustment of cash to the target is costly and takes place with a lag (Ozkan and Ozkan, 2004; Riddick and Whited, 2009). This is done by regressing the cash holdings on its past values. We adopt the GMM estimation method to deal with endogeneity issues that may exist between cash holdings and institutional ownership. Our choice of GMM over OLS is motivated by following factors – (i) key variables like institutional ownership, financial constraints, and cash holdings are likely to be endogenously related. For instance, institutional investors might target firms with certain cash policies, or firms with specific levels of cash holdings might be seen as less financially constrained, attracting more institutional investment. This feedback loop creates reverse causality, making OLS estimates biased and inconsistent, (ii) There may be unobserved factors (e.g., managerial quality, firm-specific governance practices) that influence both cash holdings and institutional ownership or corruption levels. GMM allows for the inclusion of instruments that help control for these unobserved factors, reducing the omitted variable bias that would otherwise affect OLS estimates, (iii) OLS assumes homoskedastic errors, but the real-world data on firm characteristics, particularly in emerging markets, often exhibit heteroskedasticity. GMM is robust to heteroskedasticity, making it more appropriate when the variance of errors is likely to vary across firms or over time, (iv) With interactions between institutional ownership, financial constraints, and corruption, the risk of multicollinearity increases. GMM mitigates this risk by using instruments to isolate the independent variation in each variable, allowing for more reliable interpretation of the coefficients and (v) In both emerging and developed markets, accurate estimation is crucial for understanding the economic significance of institutional ownership and cash policies. GMM provides a rigorous framework that enhances the robustness of the findings, making it more suitable for policy-relevant insights than simple OLS, which could lead to misleading inferences in the presence of endogeneity.

Accordingly, we use the model as shown below:

$Cash\_{it}= α\_{i}+α\_{t}+ β\_{1}Cash\_{it-1}+ β\_{2}inst\\_own\_{it}+β\_{n}controls+ ε\_{it}$ (1)

Where, $α\_{i}$=firm specific fixed effects, $α\_{t}$ = time invariant factors, $inst\\_own\_{it}$= institutional ownership as a percentage of the market value of equity, and $Cash\_{it}$ represent contemporaneous cash holdings. The vector of controls includes working capital, dividends, sales growth, plant, property and equipment, R&D, and leverage. Equation 1 is first-differenced with time-invariant unobserved heterogeneity is removed from estimation. Then we estimate the first-differenced equation as follows:

$∆Cash\_{it}= β\_{1}∆Cash\_{it-1}+ β\_{2}∆inst\\_own\_{it}+β\_{n}∆controls+ ∆ε\_{it}$ (2)

 However, due to this differencing, the endogeneity problem arises between the cash holdings and the idiosyncratic error because $∆Cash\_{it-1}$ and $∆ε\_{it}$ are correlated by design which results in endogeneity biases. Nickell (1981) notes that the usual fixed effects estimators (such as the first-difference estimator) are inconsistent for estimating a dynamic panel data model with lagged dependent variable as a regressor. Because of the peculiar lag structure of the model, the error term is correlated with the lagged dependent variable and create the problem of endogeneity. To overcome this problem, Anderson and Hsiao (1981) propose the instrument variable (IV) method, which uses the deeper lags ($Δy\_{i,t-2, } Δy\_{i,t-3…, }$) as instruments for the first lag of differenced dependent variable ( $Δy\_{i,t-1})$. Arellano and Bond (1991) suggest a GMM based approach (known as difference-GMM) for estimating the dynamic panel regressions, which uses the deeper lags of level observations (($y\_{i,t-2, } y\_{i,t-3…, }$)) as instruments for $Δy\_{i,t-1} $for orthogonality conditions.

These approaches, though consistent, fails to incorporate all potential orthogonality conditions into account. Blundell and Bond (1998) propose the System-GMM to deal with this problem. In addition to Arellano and Bond type orthogonality conditions (E$[y\_{i,t-τ}Δu\_{i,t}$]=0, for t ≥3 and $τ\geq 2$ ), it uses additional orthogonality conditions - E$[Δy\_{i,t-τ}, (α\_{i}+u\_{i,t})$]=0, for t ≥3 and $τ\geq 2$ . Therefore, System GMM uses deeper lags of level observations and the first lag of differenced dependent variable as instrumental variables. Therefore, the estimation requires using the generalized method of moments (GMM), as suggested by Arellano and Bond, 1991). Chowdhury & Russell (2018) argue that in the presence of structural breaks, the estimates of the dynamic models may be biased. The models by Arellano and Bond (1991) and Blundell and Bond (1998) are designed to improve the efficiency of the estimation. As our paper is centred on long-term patterns in the relationship between cash holdings and institutional shareholdings, we assume that structural breaks, if any, do not fundamentally alter the relationships being studied over the entire period.[[4]](#footnote-4)

As argued in past studies, institutional investors may have preferences for firms holding high cash; the contemporaneous endogeneity may still be an issue (Brown et al., 2012; Loncan, 2020). Therefore, in addition to considering the lagged values of cash holdings, we also include the lagged values of institutional ownership in the GMM estimation. Accordingly, both the lagged values are taken as instrument variables. Further, a firm's decision on cash holding can be affected by other firms, as a result cross sectional correlation arises, which if ignored can bias the GMM estimation. Therefore, we report the Heteroscedastic Corrected Standard errors in our models to address the issue. Although, we acknowledge that the future work could explore **dynamic panel models incorporating common factors** like a combination of Common Correlated Effects (CCE) and GMM methods). Finally, we use the Sargan's test for instrument validity and the Arellano-Bond test for second-order serial correlation.

1. **Results**

In the previous section, we have presented descriptive statistics of our main variables (Panel A: Emerging countries and Panel B: Developed countries) in Table 2. It was noted that the cash holdings of firms in emerging countries are greater than their counterparts in developed countries, which is expected. Moreover, the emerging countries in our sample have low scores on control of corruption , indicating a high level of corruption in these countries. The median score of emerging countries (-0.365) is significantly lower than those of developed countries (1.747). The lowest score (indicating high corruption) in our sample is of Russia with an average value of -0.969 and Denmark has the average highest score (indicating least corrupt) of 2.327. We now present our main empirical results, beginning with the relationship between institutional ownership and cash holdings.

*Insert Table 2 about here*

***4.1 Institutional ownership and cash holdings***

We now investigate our main results in examining the impact of institutional ownership on cash holdings. We use a dynamic panel model following Ozkan and Ozkan (2004), and the model parameters are estimated using the generalized method of moments (GMM). The model is justified because early research suggests that since cash adjustment to the target is costly, it may take time for the firms to adjust them with a lag (Nikolov and Whited, 2014). Further, institutional investors may prefer to invest in firms with high cash holdings resulting in an endogenous relationship. Under this situation, the GMM model is appropriate. We use first-differenced lagged values of cash and institutional ownership and the control variables as instruments in the model.

Our results indicate that cash holdings and institutional ownership have a negative and significant relationship in both emerging and developed markets, indicating that institutional investors may induce the firms to reduce cash holdings (Table 3). Models 1 and 3 only consider the institutional investment, and Models 2 and 4 also include all control variables. The relationship does not change. The parameters of the control variables largely agree with previous studies (Opler, 1999; Kalcheva and Lins, 2007; Bates et al., 2009). The Sargan overidentification test and the Arellano-Bond second-order serial correlation tests also suggest the appropriateness of our models.

*Insert Table 3 about here*

***4.2 Effect of financial constraint and institutional ownership on cash holdings***

We study here the moderating effect of financial constraints on cash holdings for a given level of institutional ownership. It can be argued that institutional ownership may help financially constrained firms to access funds in case of need through increased discipline and improved governance. We use the *SA Index* suggested by Hadlock and Pierce (2010) to measure the financial constraints faced by a firm. This is a composite index estimated using the size and age of the firm. The lower value of the index indicates that the firm is less constrained, and higher values indicate firms are financially constrained. In other words, the financial constraints decrease with the SA Index. We then convert the index into a dummy variable with code 1 for firms with an index value less than the median (i.e., financially constrained firms) and 0 otherwise.

*Insert Table 4 about here*

The results are reported in Table 4. We find that financially constrained firms tend to hold more cash in both emerging and developed countries, which is consistent with previous literature (Almeida et al., 2004; Riddick and Whited, 2006). However, the interaction terms are contrastingly different in emerging and developed markets. The results indicate that institutional ownership tends to induce the firms to reduce cash holdings even if they are financially constrained. We may argue that in developed markets where raising capital is easier, the presence of institutional investors reduces the need by the firms to hold more cash even if the firm is financially constrained. The presence of institutional investors improves the governance of the firm, and the market perceives this as a positive indicator, thereby easing the frictions faced by the financially constrained firms to raise capital and consequently reducing the need to hold more cash.

The interaction term is positive and statistically significant (Models 1 and 2). This indicates that although institutional ownership helps the firms to reduce cash, financial constraints faced by the firms in emerging economies force them to hold more cash. This may happen because the financial markets in emerging markets are less developed and mature compared to developed ones; the frictions faced by financially constrained firms in emerging countries in raising capital do not immediately reduce with an increase in institutional ownership. It may take a considerable time for the institutional investors to effect improvement of governance and financial parameters in the firms in these markets, and as a result, there may not be an immediate decrease in cash holdings in financially constrained firms.

* 1. ***Effect of corruption on cash holdings***

There has been an increasing debate on the impact of country-level factors on corporate cash holdings. Among those, level of corruption in a country is found to have a significant impact on corporate financial decisions. For instance, Xu and Li (2018) find that firms located in more corrupt regions of China hold less cash to shield them from illegal extraction by corrupt officials. In another study in the context of emerging economies, Thakur and Kannadhasan (2019) report opposite findings. They find that firms hold more cash with increased corruption in a country because they can benefit from the corrupt environment by trading cash. Similarly, Rocca et al. (2017) find evidence that the value of firms decreases for those firms holding higher cash in a corrupt environment.

*Insert Table 5 about here*

To further investigate the effect of the level of corruption for financially constrained and unconstrained firms, we run a regression. The results are reported in Table 5. We find that corruption and cash are positively correlated in both emerging and developed markets, which supports the findings of Thakur and Kannadhasan (2019). When we examine the effect of institutional ownership, our findings suggest that firms that are financially constrained tend to hold more cash even if the institutional ownership increases. The results are similar in both emerging and developed countries, but the extent of cash holdings in developed countries is less than in emerging markets.

* 1. ***Cash holdings in Common law and Civil law countries***

In their paper, La Porta et al. (1987) study the legal determinants of external finance. They study the extent of development in countries having common law and civil law systems. "*Common law is the body of law that is derived from judicial decisions of courts rather than statutes. Common law influences decision-making in cases where the outcome cannot be determined based on written laws or statutes. A common law court looks to past precedential decisions to apply the principles of those cases to the current case. In contrast to common law is civil law, which is a codified set of legal statutes and laws created by legislatures. In civil law, judicial authorities use the civil code to evaluate cases and reach decisions*"[[5]](#footnote-5). La Porta et al. (1987) find that countries with civil law systems, on average, have the weakest investor protection compared to those in common law countries, and firms in civil law countries find it difficult to access capital for raising capital. In the context of the emerging market, Buchanan and English II (2007) find that firms in civil law countries earn higher stock returns than firms in common law countries.

*Insert Table 6 about here*

We attribute these findings to the risk premium that firms must generate to attract investors. Consequently, we examine cash holdings for firms across common and civil law countries. For this analysis, we divide our sample within both emerging and developed markets, categorizing each country as either a common or civil law jurisdiction, with common law countries coded as one and civil law countries as zero. The results are presented in Table 6. Our findings show that firms in common law countries (both developed and emerging) hold less cash compared to those in civil law countries. Specifically, firms in developed common law countries hold significantly less cash (0.025 - 0.0037 = 0.0213) than those in emerging common law countries (0.068 - 0.015 = 0.053). Even when institutional ownership is included as an interaction term, firms in common law countries continue to hold lower cash reserves. This supports LaPorta et al. (1987)’s argument that common law countries offer stronger investor protection and governance structures, reducing the need for firms in these countries to maintain high cash holdings compared to their counterparts in civil law countries.

* 1. ***Robustness: Impact heterogeneity***

So far, we have produced mean-based estimates from dynamic panel regressions under various conditions. The estimates could be interpreted at the mean. In other words, the estimate represent ‘average effects’ of the explanatory variables on the outcome variable.

*Insert Table 7 about here*

In Table 2 (emerging and developed economics in Panel A and Panel B) present large differences between the minimum and the maximum. In case of emerging economies, for instance, for the variable Cash, the minimum is 0.105, whereas the maximum is 0.341. Likewise, for developed countries, the minimum is 0.004 and the maximum is 0.51 with a median value for Cash is 0.085. The latter is significantly different from the mean value of 0.133. This difference between the mean and the median as well as between the minimum and maximum (not only for Cash, but also for other variables) motivates us to ask if the effects of cash in the previous period and the institutional ownership exert uniform (average effects) on the current value of cash holding or the impact magnitudes are heterogeneous at various points of the distribution of cash holding. Evidence of heterogeneous impacts would indeed be more policy relevant, as we map out how a change in institutional ownership, for instance, triggers variable responses to cash holding at the low, median, and upper quantile of the distribution.

In Table 7, we present unconditional quantile regression estimates of the baseline regression. It is apparent that the median estimates for the lagged effects of cash and institutional ownership variables are substantially different from the mean-based estimates in Tables 3 and others. It is interesting to note that the estimates we obtain at the higher quantile (75th quantile) are closer to the mean-based estimates from dynamic panel regression, which means that these estimates are biased upwards and do not fully capture the effects at the lower quantile of the distribution of the dependent variable, Cash. Indeed, both the lower and median quantile estimates are far smaller than the obtained mean-based regression estimates. However, the generality of the implications of our regression remains robust (that financial constrained firms tend to hold more cash). The impact magnitudes differ across the distribution though.

**5. Concluding remarks and managerial implications**

**5.1 Conclusions**

In this paper, we study the role of institutional ownership on corporate cash holdings. Using a wide sample from both emerging and developed markets, we find that institutional investors help to reduce the cash holdings in both emerging and developed countries. We provide new evidence that the cash holdings pattern changes when we consider financial constraints, corruption at the country level, and the legal regimes. The level of corruption significantly affects cash holdings decisions by firms. Institutional ownership plays a marginal role in reducing cash for financially constrained firms. Further, if a firm operates in a corrupt environment, it tends to hold more cash, and this is common across firms in both emerging and developed countries. We also provide new findings that legal system of a country affects cash holdings decision and firms in common law countries, which are characterized by better investor protection, hold less cash.

**5.2 Managerial Implications**

The findings of this paper can be used by managers of a firm to re-look at the way to manage cash holdings. Due to increased internationalization and globalization of businesses, it is important that mangers recognize the roles played by the country-level variables that can affect their decision making. In a globalized business landscape, it is crucial for managers to recognize the impact of country-specific variables on financial decisions. We highlight two key but underexplored country level factors - the level of corruption and the legal framework within a country. Our study reveals that institutional investors have a limited impact on cash management in developed common law countries, even if corruption levels are high, which contrasts with their role in emerging common law economies. This has several important implications for managers – (i) Before expanding into new countries, managers can use these findings to assess the local institutional environment, especially corruption levels and legal protections. This evaluation can help them decide on appropriate levels of cash reserves to mitigate potential risks. (ii) The study underscores the importance of institutional investors, especially in emerging markets, in moderating financial resource management. Managers in such regions may benefit from actively engaging with institutional investors to align cash management practices with broader financial stability goals and finally (iii) by understanding how corruption and legal frameworks affect cash holdings, managers can implement targeted risk mitigation strategies. For instance, in high-corruption countries, maintaining higher liquidity may provide a buffer against potential instability.

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**Table 2**

**Descriptive statistics**

**Panel A: Emerging Economies**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Mean | Median | Standard Deviation  | Minimum | Maximum | Obs. |
| Cash | 0.168 | 0.113 | 0.009 | 0.341 | 0.105 | 150372 |
| NWC | 0.115 | 0.134 | -1.005 | 0.723 | 0.195 | 150372 |
| PPE | 0.322 | 0.267 | 0.006 | 0.879 | 0.252 | 150372 |
| R&D | 0.011 | 0.000 | 0.000 | 0.50 | 0.05 | 150372 |
| SA\_Index | -4.86 | -4.47 | -8.43 | -1.9 | 1.76 | 150372 |
| 3\_yr\_sales\_gr | 0.063 | 0.024 | -0.129 | 0.381 | 0.128 | 150372 |
| Leverage | 0.202 | 0.161 | 0.000 | 0.562 | 0.171 | 150372 |
| Corruption | -0.150 | -0.365 | 0.1401 | -1.203 | 1.628 | 150372 |
| Ins\_Own | 0.125 | 0.132 | 0.145 | 0.015 | 0.268 | 150372 |

**Panel B: Developed Countries**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Mean | Median | Standard Deviation | Minimum | Maximum | Obs. |
| Cash | 0.133 | 0.085 | 0.137 | 0.004 | 0.51 | 220963 |
| NWC | 0.091 | 0.068 | 0.142 | -0.159 | 0.396 | 220963 |
| PPE | 0.328 | 0.272 | 0.257 | 0.006 | 0.890 | 220963 |
| R&D | 0.004 | 0.000 | 0.012 | 0.000 | 0.048 | 220963 |
| 3\_Yr\_Sales\_gr | 0.064 | 0.025 | 0.125 | -0.120 | 0.376 | 220963 |
| Leverage | 0.186 | 0.158 | 0.165 | 0.000 | 0.563 | 220963 |
| Corruption | 1.632 | 1.747 | 0.127 | 0.282 | 2.327 | 220963 |
| Ins\_Own | 0.175  | 0.132  | 0.097  | 0.065  | 0.293  | 220963 |

*Cash* is defined as cash and cash equivalents, *NWC* is net working capital and defined as account receivables, inventories less accounts payables, *PPE* is plant, property and equipment, *R&D* is R&D expenses, *3\_Ys\_Sales\_gr* is the average growth rate of sales of past consecutive three years, *Leverage* is interest bearing long term and short term debt, *Corruption* is Control of corruption index ranges from -2.5 (Most corrupt) to +2.5 (least corrupt) and *Ins\_Own* is the institutional investments (in USD million) divided by last year market value of equity. All variables except corruption and ins\_own are divided by net total assets (total assets less cash and cash equivalents)

**Table 3**

**Effect of institutional ownership on firm's cash holdings**

$$Cash\_{it}= α\_{i}+α\_{t}+α\_{c}+ β\_{1}Cash\_{it-1}+ β\_{2}inst\\_own\_{it}+β\_{n}controls+ ε\_{it}$$

|  |  |  |
| --- | --- | --- |
|  | Emerging Economies | Developed Countries |
| Variables | (1) | (2) | (3) | (4) |
| $$Cash\_{it-1}$$ | 0.235\*\*\*(0.0151) | 0.178\*\*\*(0.0212) | 0.158\*\*\*(0.0241) | 0.136\*\*\*(0.0281) |
| $$inst\\_own\_{it}$$ | -0.104\*\*\*(0.0015) | -0.125\*\*\*(0.0021) | -0.095\*\*\*(0.0018) | -0.087\*\*\*(0.0054) |
| NWC |  | -0.025\*\*\*(0.000) |  | -0.018\*\*\*(0.000) |
| 3\_year growth |  | 0.004\*\*\*(0.001) |  | 0.001\*\*\*(0.000) |
| R&D |  | 0.0029\*\*\*(0.000) |  | 0.0156\*\*\*(0.000) |
| Leverage |  | 0.195\*\*\*(0.052) |  | 0.149\*\*\*(0.002) |
| PPE |  | -0.172\*\*\*(0.001) |  | -0.229\*\*\*(0.001) |
| Div\_dum |  | 0.0025\*\*\*(0.000) |  | 0.016\*\*\*(0.000) |
| Sargan's test (p-value) | 0.115 | 0.121 | 0.142 | 0.138 |
| AR(2) test | 0.485 | 0.415 | 0.587 | 0.562 |
| Obs. | 165635 | 165635 | 183516 | 183516 |

**Note**: \*\*\*: Significant at 1%; \*\*: Significant at 5%, and \*: Significant at 10% levels. The figures in parentheses are the HAC standard errors. *Cash* is defined as cash and cash equivalents, *NWC* is net working capital and defined as account receivables, inventories less accounts payables, *PPE* is plant, property and equipment, *R&D* is R&D expenses, *3\_Ys\_Sales\_gr* is the average growth rate of sales of past consecutive three years, *Leverage* is interest bearing long term and short term debt, *Div\_dum* is a dummy variable and is equal to 1 if the firm paid dividend in the last fiscal year and 0 otherwise. All variables except div\_dum are divided by net total assets (total assets less cash and cash equivalents). *Ins\_Own* is the institutional investments (in USD million) divided by last year market value of equity.

**Table 4**

**Effect of financial constraints and institutional ownership on cash holdings**

$$Cash\_{it}= α\_{i}+α\_{t}+β\_{1}Cash\_{it-1}+ β\_{2}SA\\_index\_{it}+ β\_{3}inst\\_own\_{it}+β\_{4}inst\\_own\_{it}\*SA\\_index\_{it}+ ε\_{it}$$

|  |  |  |
| --- | --- | --- |
|  | Emerging Economies | Developed Countries |
| Variables | (1) | (2) | (3) | (4) |
| $$Cash\_{it-1}$$ | 0.235\*\*\*(0.0151) | 0.178\*\*\*(0.0212) | 0.158\*\*\*(0.0241) | 0.136\*\*\*(0.0281) |
| $$inst\\_own\_{it}$$ | -0.104\*\*\*(0.0015) | -0.125\*\*\*(0.0021) | -0.095\*\*\*(0.0018) | -0.087\*\*\*(0.0054) |
| $$SA\\_index\_{it}$$ | 0.102\*\*\*(0.000) | 0.087\*\*\*(0.002) | 0.048\*\*\*(0.001) | 0.041\*\*\*(0.001) |
| $$inst\\_own\_{it}\*SA\\_index\_{it}$$ | 0.121\*\*\*(0.000) | 0.115\*\*\*(0.003) | -0.015\*\*\*(0.002) | -0.028\*\*\*(0.001) |
| NWC |  | -0.031\*\*\*(0.000) |  | -0.015\*\*\*(0.000) |
| 3\_year growth |  | 0.037\*\*\*(0.001) |  | 0.001\*\*\*(0.000) |
| R&D |  | 0.001\*\*\*(0.000) |  | 0.0171\*\*\*(0.000) |
| Leverage |  | 0.158\*\*\*(0.052) |  | 0.129\*\*\*(0.002) |
| PPE |  | -0.184\*\*\*(0.001) |  | -0.191\*\*\*(0.001) |
| Div\_dum |  | 0.005\*\*\*(0.000) |  | 0.024\*\*\*(0.000) |
| Obs. | 165635 | 165635 | 183516 | 183516 |
| Adj R2 | 0.451 | 0.517 | 0.528 | 0.531 |

**Note**: \*\*\*: Significant at 1%; \*\*: Significant at 5%, and \*: Significant at 10% levels. The figures in parentheses are the HAC standard errors. *Cash* is defined as cash and cash equivalents, *NWC* is net working capital and defined as account receivables, inventories less accounts payables, *PPE* is plant, property and equipment, *R&D* is R&D expenses, *3\_Ys\_Sales\_gr* is the average growth rate of sales of past consecutive three years, *Leverage* is interest bearing long term and short term debt, *Div\_dum* is a dummy variable and is equal to 1 if the firm paid dividend the last fiscal year and 0 otherwise. All variables except div\_dum are divided by net total assets (total assets less cash and cash equivalents). *Ins\_Own* is the institutional investments (in USD million) divided by last year market value of equity. *SA\_index* is the measure of financial constraint following Hadlock and Pierce (2010).

**Table 5**

**Effect of corruption on cash holdings**

$$Cash\_{it}= α\_{0}+α\_{i}+α\_{t}+β\_{1}Cash\_{it-1}+ β\_{2}inst\\_own\_{it}+ β\_{3}SA\\_index\_{it}+β\_{4}Corruption\_{it} +β\_{5}Corruption\*inst\_{own}\_{it}+β\_{6}inst\\_own\_{it}\*SA\\_index\_{it}+β\_{7}Corruption\*inst\\_own\_{it}\*SA\\_index\_{it}+ε\_{it}$$

|  |  |  |
| --- | --- | --- |
| Variables | Emerging Economies | Developed Countries |
| constant | 0.115\*\*\*(0.042) | 0.095\*\*\*(0.000) |
| $$Cash\_{it-1}$$ |  0.172\*\*\*(0.001) |  0.098\*\*\*(0.001) |
| $$inst\\_own\_{it}$$ | -0.151\*\*\*(0.001) | -0.083\*\*\*(0.001) |
| $$SA\\_index\_{it}$$ | 0.085\*\*\*(0.000) | 0.066\*\*\*(0.001) |
| Corruption | 0.112\*\*\*(0.005) | 0.086\*\*\*(0.001) |
| Corruption\*$inst\\_own\_{it}$ | -0.0015\*\*\*(0.017) | -0.0003\*\*\*(0.000) |
| $$inst\\_own\_{it}\*SA\\_index\_{it}$$ | 0.011\*\*\*(0.002) | -0.017\*\*\*(0.001) |
| Corruption\*$inst\\_own\_{it}\*SA\\_index\_{it}$ | 0.041\*\*\*(0.000) | 0.008\*\*(0.000) |
| Controls | Yes | Yes |
| Country FE | Yes | Yes |
| Firm FE | Yes | Yes |
| Year FE | Yes | Yes |
| Obs. | 165635 | 183516 |
| Adj R2 | 0.455 | 0.378 |

**Note**: \*\*\*: Significant at 1%; \*\*: Significant at 5%, and \*: Significant at 10% levels. The figures in parentheses are the HAC standard errors. *Cash* is defined as cash and cash equivalents divided by net total assets (total assets less cash and cash equivalents). Controls include *NWC*, *PPE*, *R&D* is R&D and *Leverage*. *Ins\_Own* is the institutional investments (in USD million) divided by last year market value of equity. *SA\_index* is the measure of financial constraint following Hadlock and Pierce (2010).  *Corruption* is Control of corruption index ranges from -2.5 (Most corrupt) to +2.5 (least corrupt).

**Table 6**

**Cash holdings in Common Vs Civil law countries**

$$Cash\_{it}= α\_{i}+α\_{t}+α\_{c}+ β\_{1}inst\\_own\_{it}+ β\_{2}Common\_{it}+β\_{3}Common\*inst\\_own\_{it}+ ε\_{it}$$

|  |  |  |
| --- | --- | --- |
| Variables | Emerging Economies | Developed Countries |
| Constant | 0.068\*\*\*(0.001) | 0.025\*\*\*(0.000) |
| $$inst\\_own\_{it}$$ | -0.087\*\*\*(0.001) | -0.048\*\*\*(0.001) |
| Common | -0.018\*\*\*(0.001) | -0.0037\*\*(0.000) |
| Common\*$inst\\_own\_{it}$ | -0.014\*\*\*(0.000) | -0.001(0.026) |
| Controls | Yes | Yes |
| Country FE | Yes | Yes |
| Firm FE | Yes | Yes |
| Year FE | Yes | Yes |
| Obs. | 171554 | 216317 |
| Adj R2 | 0.18 | 0.13 |

**Note**: \*\*\*: Significant at 1%; \*\*: Significant at 5%, and \*: Significant at 10% levels. The figures in parentheses are the HAC standard errors. *Cash* is defined as cash and cash equivalents divided by net total assets (total assets less cash and cash equivalents). Controls include *NWC*, *PPE*, *R&D* is R&D and *Leverage*. *Ins\_Own* is the institutional investments (in USD million) divided by last year market value of equity. *Common* is a binary variable and is coded as 1 if the country belongs to the common law regime and 0 if it belongs to the civil law regime.

**Table 7: Uncovering Impact Heterogeneity**

**Panel A: Developed Market**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Quantile: 0.25** | **Quantile: 0.50** | **Quantile: 0.75** |
|  |  |  |  |
| Cashit-1 | 0.007\*\*\*(0.001) | 0.105\*\*\*(0.002) | 0.173\*\*\*(0.000) |
| $$inst\\_own\_{it}$$ | -0.012\*\*\*(0.000) | -0.078\*\*\*(0.001) | -0.125\*\*\*(0.002) |
| Controls | YES | YES | YES |
| Intercept | 0.063\*\*\*(0.000) | 0.186\*\*\*(0.001) | 0.359\*\*\*(0.002) |
| Pseudo R2 | 0.033 | 0.098 | 0.234 |
| Obs. | 183516 | 183516 | 183516 |

**Note:** The results pertain to panel unconditional quantile regression. \*\*\* indicates significant at 1%; Quantile regression component: Huber Sandwich Standard Errors and Covariance; Bandwidth Method: Hall-Sheather (bw=0.013 for tau = 0.25; bw=0.019 for tau = 0.50 and bw=0.013 for tau = 0.75); Sparsity Method: Kernel (Epanechnikov) using residuals. *Cash* is defined as cash and cash equivalents divided by net total assets (total assets less cash and cash equivalents). Controls include *NWC*, *PPE*, *R&D* is R&D and *Leverage*. *Ins\_Own* is the institutional investments (in USD million) divided by last year market value of equity.

**Panel B: Emerging Market**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Quantile: 0.25** | **Quantile: 0.50** | **Quantile: 0.75** |
|  |  |  |  |
| Cashit-1 | 0.015\*\*\*(0.001) | 0.143\*\*\*(0.003) | 0.186\*\*\*(0.005) |
| $$inst\\_own\_{it}$$ | -0.001\*\*\*(0.000) | -0.093\*\*\*(0.001) | -0.161\*\*\*(0.002) |
| Controls | YES | YES | YES |
| Intercept | 0.053\*\*\*(0.000) | 0.133\*\*\*(0.001) | 0.273\*\*\*(0.005) |
| Pseudo R2 | 0.031 | 0.067 | 0.137 |
| Obs. | 165635 | 165635 | 165635 |

**Note:** The results pertain to panel unconditional quantile regression. \*\*\* indicates significant at 1%; Quantile regression component: Huber Sandwich Standard Errors and Covariance; Bandwidth Method: Hall-Sheather (bw=0.013 for tau = 0.25; bw=0.018 for tau = 0.50 and bw=0.013 for tau = 0.75); Sparsity Method: Kernel (Epanechnikov) using residuals. *Cash* is defined as cash and cash equivalents divided by net total assets (total assets less cash and cash equivalents). Controls include *NWC*, *PPE*, *R&D* is R&D and *Leverage*. *Ins\_Own* is the institutional investments (in USD million) divided by last year market value of equity.

**Appendix I: Variable definition**

|  |  |  |
| --- | --- | --- |
| Variable | Measure | Source |
| Cash | $$ \frac{(Cash+cash equivalents)}{(Total Assets-cash-cash equivalents)}$$ | Bloomberg |
| Age | Age from the date of listing in the stock exchange | Bloomberg |
| Cash from Operations (CFO) | $$\frac{(Cash from operations)}{(Total Assets-cash-cash equivalents)}$$ | Bloomberg |
| Net working capital (NWC) | $$\frac{\left(Inventories+Account Receivables-Account payables\right)}{\left(Total Assets-cash-cash equivalents\right)}$$ | Bloomberg |
| Plant, Property and Equipment (PPE) | $$\frac{(Plant, Property and Equipment )}{(Total Assets-cash-cash equivalents)}$$ | Bloomberg |
| Research and Development (R&D) | $$\frac{(R\&D Expenses)}{(Total Assets-cash-cash equivalents)}$$ | Bloomberg |
| Return on Assets (ROA) | $$\frac{(Earnings before interest and taxes)}{(Total Assets-cash-cash equivalents)}$$ | Bloomberg |
| SA\_Index | (-0.737×Size) + (0.043 × Size2) – (0.04 × Age) | Hadlock and Pierce, 2010 |
| Size  | Natural log of ($Total Assets-cash-cash equivalents)$ | Authors own |
| Sales\_growth | 3-years moving average of sales growth | Bloomberg |
| Leverage | $$\frac{(Interest bearing long term and short term debt)}{(Total Assets-cash-cash equivalents)}$$ | Bloomberg |
| Institutional investors | $$\frac{Institutional investment (US \$ million)}{Market value of equity (US \$ million)}$$ | Authors' calculation |
| Corruption | Control of corruption index ranges from -2.5 (Most corrupt) to +2.5 (least corrupt) | World Governance Indicators, IMF Database |

**Declaration of Interest Statement**

**The authors have no conflicts of interests to declare.**

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2. Lee and Kim (2024) construct a two-period optimal liquidation problem to study the optimal intertemporal liquidation strategies to meet the cash requirements of large institutional investors. Ataullah et al. (2022) demonstrate that institutional heterogeneity can improve firms’ long-term growth and the institutions that focus on regular income seem to resist cuts in the event of exogenous shocks, such as the COVID-19. [↑](#footnote-ref-2)
3. Klettner (2021) analyses, for instance, national stewardship codes to understand cross-country variations in investor stewardship policy. The author notes that stewardship codes influence the shareholder–manager relationship and can encourage integration of wider economic and societal concerns into corporate finance. [↑](#footnote-ref-3)
4. Thanks to an anonymous referee for offering insights to this note. [↑](#footnote-ref-4)
5. <https://worldpopulationreview.com/country-rankings/common-law-countries>, accessed on June 11, 2022. [↑](#footnote-ref-5)