



Determinants of Corporate Cash Holdings in Private and Public Companies: Insights from Latin America

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Abstract:

Despite the growing academic and press interest on cash management recently, little is known about cash holdings in private firms from emerging economies. In this article we fill this gap in the literature by analyzing the determinants of cash holdings in private and public companies in the Latin American setting. Toward our objective, we use a wide sample of 7,222 firms (46,040 firm-year observations) from the six largest Latin American economies (Argentina, Brazil, Chile, Colombia, Mexico, and Peru) over the period of 2000-2019. Consistent with the research hypothesis, we find strong and robust evidence that Latin American private firms hold significantly less cash holdings than their public counterparts. This paper is relevant because it shows that Latin American private firms hold significantly less cash than their public peers, despite a higher precautionary demand for cash by the former. Our research has important implications for managers and policymakers, as we demonstrate that firms' cash holdings are significantly influenced by the business environment in which they operate. We also contribute to the literature on cash management by improving the understanding of the determinants of cash holdings in private firms from emerging markets. Our main results hold after controlling for a large number of firm and country characteristics that affect cash holdings. Furthermore, the conclusions are robust to a series of robustness checks.

Keywords: Cash holdings; Private Firms; Emerging Markets; Latin America.

Thematic Line: Finance and capital markets - Corporate Governance



1. INTRODUCTION

A central question in corporate finance is related of how much of total assets a firm should keep in the form of cash and cash equivalents to maximize its value. The way in which company manage corporate cash holdings is an important concern to managers, researchers, investors, and policy makers. As an example, managers must ensure that they have enough cash holdings within the firm so as to take advantage as growth opportunities and to overcome unforeseen problems. In this regard, many CFOs consider decisions about cash levels to be among the most relevant decisions they make in imperfect capital markets (Almeida, Campello, Cunha, & Weisbach, 2014; Graham & Leary, 2018; Manoel & Moraes, 2021). A large body of literature has recently emerged to increase the understanding the firm, industry and country level factors that explain why companies around the world maintain considerable amounts of cash on their balance sheets (Deloof, Du, & Vanacker, 2020).

Although liquidity management has become a relevant research topic in corporate finance, the literature is characterized by some remarkable gaps that we address in this research. More precisely, despite the growing efforts to the determinants of firms' cash holdings, empirical studies about the theme focus almost exclusively on the context of publicly traded companies, in large part due to lack of available data for private firms. In addition, while providing relevant insights, the scarce literature on corporate cash holdings of private firms generally focuses on a single developed country (Gao, Harford, & Li, 2013), especially in the U.S. setting (Gao et al., 2013), which are often dissimilar to the context of private firms from emerging economies. The lack of research in privately held firms from emerging markets is remarkable because privately held firms are the dominant organization form across the world and also because the rise of companies from emerging countries is a relevant factor in the globalization of the world economy (Deloof et al., 2020).

In the present article, we fill this gap in the empirical literature by analyzing cash holdings and its determinants in private and public companies in the Latin American setting. We also investigate whether Latin American privately held firms maintain lower cash holdings than their public counterparts. Private firms internationally outnumber public companies, employ a large proportion of the work force, and are considered an indispensable part of any economy. Therefore, studies involving privately held firms in itself are of great interest to shareholders (Gao et al., 2013). Still, the studies based on publicly traded companies may not be generalizable to private firms, as private firms differ from public companies in several important aspects.

One fundamental difference between public and private companies, for example, is the ownership structure and, consequently, the degree to which control is valued by their shareholders. While public firms have thousands of shareholders, the private ones generally have one or a few shareholders (Brav, 2009). Thus, considering that managers and owners are often the same individuals, then private firms usually have lower manager-shareholder agency conflicts than publicly listed companies (Brav, 2009). Another relevant distinction is the level of information asymmetry, given that private firms are generally more opaque to outsiders. Additionally, cash holdings may be particularly relevant for private firms because they generally have less access to external funds at a fair terms. Whereas managers in public companies can usually smooth their activities and invest when appropriate by accessing public markets, private firm managers have to rely more on cash holdings and current cash flows. All



these factors are likely to impact the cash policies of private firms relative to their public counterparts (Brav, 2009; Deloof et al., 2020).

Furthermore, cash holdings can differ across countries because differences in institutions cause differences in firm characteristics (Almeida et al., 2014). For instance, different access to external funds, different level of development of financial institutions and creditor protection might impact the percentage of total assets invested in cash and cash equivalents in public and private firms from emerging economies. Hence, it is relevant to distinguish the differences in corporate cash holdings in private and public companies from emerging countries and whether it differ for more or less developed capital markets (Hall, Mateus, & Mateus, 2014). It is also relevant to note that one can observe some notable differences in the findings across studies. For example, using a wide panel data of firms from Central and Eastern Europe for the period from 2001 to 2010, Hall et al. (2014) document that private firms tend to hold more cash holdings than public companies. Gao et al. (2013), on the other hand, document that public companies in the U.S. hold significantly more cash holdings than private firms. Such differences suggest that the literature about corporate cash holdings need more cross-country studies on cash holdings of private firms, such as ours.

Latin America offers a good setting for this research. First, despite the importance of Latin American countries to the world economy, this region has been largely neglected in cash management literature (Manoel & Moraes, 2021). Indeed, we know of no investigation of whether Latin American privately held firms hold more cash holdings relative to their public counterparts. Resolving the issue of whether private firms hold less cash holdings relative to their public counterparts is relevant in understanding the cash holdings of these firms and the determinants of cash holdings in general. Second, there are some features in the Latin American setting which, we believe, may have relevant implications with regard to the cash management behavior of companies. For example, Latin America is characterized as an underdeveloped market, with weak institutional environments and highly concentrated ownership structure. Moreover, the level of investor protection (French civil law) is low in Latin America and the problem of investor expropriation is more severe. The poor investor protection, in turn, lead Latin American companies to face more constraints in accessing external funds relative to firms from developed economies. In this environment, higher cash levels will be prevalent to take advantage of growth opportunities, which would be bypassed due to costly external finance (Manoel & Moraes, 2021). In the same way, the insufficient external market discipline of the Latin American context can provide self-interested managers with greater freedom to pursue their personal objectives in lieu of shareholders' interests (Manoel & Moraes, 2021). In sum, Latin America is an under researched region that has the potential to yield relevant insights into the cash management literature.

After controlling for firm-specific characteristics and for country level variables identified by prior research as determinants of cash levels, we find that Latin American private firms hold significantly less cash holdings than their public counterparts. Therefore, despite the fact that private firms from Latin America have less access to external funds and would be expected to have a higher precautionary saving motive to hold cash, we document that they hold significantly less corporate cash holdings relative to public companies. In the main analyzes, we ran pooled OLS regressions with country, industry and year fixed effects. However, our main conclusions are the same when firm fixed effects and the weighted least squares (WLS) methodology are applied.



This paper provides a number of important contributions to the literature on cash holdings. First, despite the importance of privately held firms in most economies, only a handful of prior research have analyzed the determinants of cash levels in private firms. Thus, in using a dataset of privately held companies from the six largest Latin American economies, we join a recent surge of articles using data on private firms to draw new insights into publicly traded companies' behavior (Gao et al., 2013). Second, this is the first study to analyze the determinants of cash levels in a wide sample of private firms from emerging markets. Then, we also contribute to the literature by improving the understanding of the determinants of corporate cash holdings in private firms from emerging economies. This is of particular importance for companies from emerging economies because they are often more affected by market imperfections. Third, our sample also allows us to establish the generalizability of prior evidence with a limited set on single developed country studies about private firms.

Fourth, our results also shed light on whether emerging economies have some common characteristics in the cash management of private and public corporations. As a result, this article will also be interesting for policymakers and academics leading to further discussions on corporate cash holdings. Fifth, we also add to the literature on corporate cash holdings by demonstrating that in the Latin American context, where shareholders are generally poorly protected and firms have limited access to external finance, private firms hold significantly less cash holdings than their public counterparts. Therefore, this paper also has relevant implications for managers and policymakers, as we demonstrate that firms' cash reserves are significantly influenced by the business environment in which they operate, in that, Latin American private firms, despite a higher precautionary demand for cash, maintain higher cash holdings.

2. HYPOTHESIS DEVELOPMENT

In the absence of market imperfections, the decision about cash levels would not affect firm value, given that in this theoretical situation, external finance is always available at fair terms. In this scenario, firms would be able to fund all positive net present value (NPV) projects, regardless the existence of cash. However, in the real world of taxes, information asymmetries and agency problems, the decision about how much assets a firm should keep in the form of cash and cash equivalents indeed affect their value (Opler, Pinkowitz, Stulz, & Williamson, 1999).

The empirical literature on cash holdings identified three main reasons for companies to keep part of their total assets in the form of cash and cash equivalents. The first motive is called precautionary. Firms stockpile cash under the precautionary motive to protect themselves against adverse cash flow shocks that might force them to forgo positive NPV projects, especially during periods of poor business conditions. Second, for transactional motives, companies hold cash to meet the needs that come from their normal activities without having to liquidating assets. In addition to the precautionary and transactional reasons, firms also hold cash to take timely advantage of their growth opportunities that might otherwise be forgone due to costly external financing. The literature refers to this as the speculative motive for holding cash (Opler et al., 1999; Graham & Leary, 2018; Manoel, Moraes, Nagano, & Sobreiro, 2018; Mortal, Nanda, & Reisel, 2020).

The existence of the aforementioned benefits makes cash holdings valuable to shareholders. However, cash can be a double-edge sword (Opler et al., 1999). In fact, the literature identifies two main costs of holding cash reserves. First, holding liquid assets implies



an opportunity cost, given that cash earn a low rate of return relative to more productive but less liquid assets; that is, the cost of carry. Second, cash holdings can cause agency concerns between managers and shareholders due to managerial discretion. The free cash flow theory (Jensen, 1986) postulates that cash are detrimental for companies since cash holdings imply agency costs. This occurs because cash is the asset most vulnerable to opportunistic behavior by entrenched managers, given that the access to cash is with little scrutiny and its use is discretionary. For example, self-interested managers can have incentives to spend cash on negative NPV projects or on opportunistic behaviors that benefit themselves but do not create value for shareholders, such as the consumption of perquisites, excessive compensation, or outright stealing. Therefore, when agency problems from the separation of ownership and control are relevant, self-interested managers can derive more easily the private benefits from cash resources to pursue personal objectives instead of maximizing shareholders wealth. This is known as the free cash problem (Jensen, 1986).

Given all the above, cash can have both benefits and costs to shareholders, in that, firms' cash policy should balance the positive and negative sides of holding cash (Graham & Leary, 2018). Particularly, one would expect private firms to hold more precautionary cash than their public peers. As mentioned earlier, corporate liquidity decisions are affected by the imperfections in the capital markets. Since capital markets are subject to frictions, such as information asymmetry and agency conflicts, then companies cannot always obtain external funds on a timely basis (Opler et al., 1999). In this regard, Arslan, Florackis and Ozkan (2006) suggest that companies that are exposed to greater imperfections in capital markets are expected to maintain larger cash holdings, as cash increases their ability to undertake all positive NPV projects when internal funds are not enough, and external funds is excessively costly. Hence, considering that private firms are generally more expose to market imperfections, then one would expect them to have a higher precautionary demand for cash than public companies to avoid the risk of distress (Brav, 2009; Deloof, et al., 2020).

Evidence in favor of this explanation has been found by Hall et al. (2014). By using a sample of public and private firms from Central and Eastern Europe, they document that the latter hold more cash reserves than publicly traded companies. Hall et al. (2014) attribute their results to the fact that public companies have easier access to capital markets relative to private firms. Hence, private firms accumulate more precautionary cash holdings because the excess cash can play the role of a buffer against future financial distress. However, contrary to these predictions, prior empirical evidence with U.S. data show that private corporations tend to hold less cash than publicly listed companies (Gao et al., 2013). Based on a sample of public and private U.S. firms, Gao et al. (2013) find that privately held firms hold about half as much cash as public companies do despite the fact that they have less access to external funds. Gao et al. (2013) attribute their findings to the fact that private firms often have fewer managers-shareholders agency problems than their public counterparts because they typically have concentrated ownership, often with an owner-managers. As a consequence of the lower agency costs in private firms, private firm managers will have lower incentives to maintain higher cash levels. In sum, their evidence suggest that U.S. public companies hold more cash than private firms due to the countervailing effect of agency problems, despite a higher precautionary demand for cash by private companies.

The aforementioned evidence indicates a clear trade-off between agency conflicts and precautionary motives on cash behavior between public and private firms. For example, if the precautionary motive for cash holdings dominates the agency concerns for private firms, then



these firms should hold more cash holdings relative to public companies. On the other hand, if the agency explanation for holding cash dominates the precautionary demand, then private firms should maintain lower cash levels than public companies. In sum, due to financial constraints private firms may have greater precautionary demand for cash holdings relative to public firms, but at the same time, the former may have lower agency problems, which leads to lower cash levels (Gao et al., 2013; Hall et al., 2014).

Another relevant factor that can influence the cash levels of private firms relative to public companies is the cost of holding cash. In this regard, Mortal et al. (2020) suggests that in extreme cases, when external financing is extremely costly, firms accumulate relatively little cash holdings because the opportunity cost of holding cash is high. The high cost of cash may impair the ability of private firms to respond to the precautionary reasons for holding cash (Mortal et al., 2020). Consistent with the hypothesis that holding cash is relatively costlier for private firms, Mortal et al. (2020) provide evidence that European private firms hold significantly less cash reserves relative to their public counterparts. Last but not least, despite the evidence of Denis and Sibilkov (2010) indicate that cash reserves are more valuable to constrained firms, they find that many constrained companies have surprisingly low cash levels. The authors attribute this puzzling behavior to the fact that some of the firms that face higher financial constraints exhibit weaker financial health, in that, they are unable to accumulate cash. Stated differently, the poor financial performance has drained the prior cash holdings of low cash constrained firms and/or prevent them from building their adequate cash levels. This appears to inhibit the ability of some constrained firms to stockpile higher cash holdings.

For the Latin American context, we expect private firms to keep lower cash levels relative to their public peers. As mentioned previously, Latin America is characterized as an underdeveloped market, where firms often have less access to external capital at a fair terms. In this context, greater cash holdings allow companies to avoid underinvestment and reduced growth (Manoel & Moraes, 2021). However, one cannot ignore that private firms are more constrained in accessing external funds relative to public companies, in a context where Latin American companies already have more difficulties in raising external finance compared to corporations from developed countries. Hence, the higher level of financial constraints faced by many private firms in Latin America may imply that they cannot hold the desired levels of corporate cash holdings. Based on the aforementioned arguments, our research hypothesis is:

H1: Latin American private firms, *ceteris paribus*, hold less cash holdings than their public counterparts.

3. RESEARCH METHODOLOGY

3.1. The sample

Our initial sample consist of all firms from the six largest Latin American economies (Argentina, Brazil, Chile, Colombia, Mexico and Peru), for which data are available on the Capital IQ database. We opt to limit our sample to these countries mainly for two reasons. First, due to their relevance to the Latin American economy. Second, because we were able to construct a significative sample size of private and public companies from these countries. The sample includes public and private companies from these countries from 2000 to 2019. These data include surviving and no surviving firms that appear on Capital IQ database at any time in the sample period to mitigate the concern of survivorship bias. All data are in USD.





It is relevant to note that Capital IQ database reports only contemporaneous information on the legal form of the companies, i.e., private and public, rather than historical information. As an example, if a company had an Initial Public Offering (IPO) in 2010 and it also has information available from 2000 to 2019, then Capital IQ database classifies the company as public throughout the sample period. We complement the data provided by Capital IQ database by collecting data on initial public offerings and delisting from each stock exchange. Hence, for each firm-year we check its IPO date and delisting date to reclassify as public or private.

Consistent with prior empirical literature (Opler et al., 1999), we exclude financial companies from the initial sample because they hold cash to maintain reserve requirements. We also remove utilities firms from our sample because they are subject to regulatory supervision. Finally, we also exclude firms with negative equity to avoid capturing effects that may be related to financial stress. After applying these filters, we built an unbalanced panel data comprising 7,222 unique Latin American firms (46,040 firm-year observations).

3.2. Variables

3.2.1. Dependent variable

In the initial analyzes, we use the natural logarithm of cash and cash equivalents to net assets as our dependent variable, where net assets are computed as total assets minus cash and cash equivalents (Opler et al., 1999). In other words, cash was measured by the natural log of (Cash/Net assets).

3.2.2. Independent variable

Our main interest variable is the *Listed Companies* dummy variable that takes the value 1 for Latin American public firms and 0 for their private counterparts.

3.2.3. Firm-level control variables

In this subsection, we provide a brief review of the firm-specific characteristics identified by previous literature as relevant in explaining firms' cash position. The definitions of these variables are provided in Table 1. To alleviate the undue effects of outliers and possible data errors, we winsorize all continuous variables in all the analyzes at the 1st and the 99th percentile levels.

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Size: Larger firms maintain smaller amounts of cash on their balance sheets due to the economies of scale in cash management. Hence, a negative association is expected between firm size and cash (Almeida, Campello, & Weisbach, 2004; Ozkan & Ozkan, 2004).

Dividend dummy: A firm that currently pays dividends are better able to accumulate cash by reducing its dividend payments (Ozkan & Ozkan, 2004). Thus, we expect that Latin American firms that pay dividends hold less cash reserves than non-dividend paying firms.



Cash Flow: Companies with high cash flow may be able to accumulate more corporate cash holdings. In this sense, we expect a positive association between cash flow and cash holdings (Mortal et al., 2020).

Net Working Capital (NWC): Firms can use non-cash liquid assets when they have cash shortfalls. In addition, the cost to convert non-cash liquid assets into cash is lower in comparison with other assets (Ozkan & Ozkan, 2004). Thus, we expect a negative association between Net Working Capital and cash levels.

Growth Opportunities (GO): Firms with valuable growth opportunities are likely to demand greater funds to avoid the necessity of resorting to costly external funds and to minimize the opportunity costs of foregone profitable investment. In this sense, we expect a positive association between cash levels and growth opportunities (Manoel & Moraes, 2018; Mortal et al., 2020; Deloof et al., 2020).

Short-Term Debt (STD): Companies can increase their level of short-term debt to build cash reserves. From this perspective, a negative association between short-term debt and cash is expected (Almeida et al., 2004; Arslan et al., 2006).

Leverage: Leverage plays a significant role in understanding a firm's cash position. Companies with a high degree of leverage are more likely to accumulate cash due to the greater likelihood of financial distress, which suggest a positive relationship between leverage and cash (Al-Najjar, 2013). However, Ozkan and Ozkan state that a negative association is another possible outcome, given that leverage act as a proxy for the ability of firms to issue debt. These facts may indicate an ambiguous association between leverage and cash.

Return on Assets (ROA): Profitable organizations are better able to distribute dividends, pay their debts and stockpile cash (Al-Najjar, 2013). These facts, taken together, indicate a positive association between firm's profitability and cash levels.

Tangibility: Firms with a greater number of tangible assets may sell part of their tangible assets if a sudden need for cash holdings arises. This suggests a negative association between tangible assets and cash (Fernandes & Gonenc, 2016).

Age: Older firms generally have more stable cash flows, lower investment opportunities and require less cash holdings (Mortal et al., 2020). In this sense, Mortal et al. (2020) suggests a negative association between firms' age and cash holdings.

3.2.4. Country-level institutional control variables

Investor Protection: Dittmar, Mahrt-Smith and Servaes (2003) document that investor protection (shareholder rights) from La Porta, Lopez-de-Sinales, Shleifer and Vishny (1998) explains a significant portion of the cross-country variation in cash holdings. Thus, we also add shareholder rights (Anti-director rights index) from La Porta et al. (1998) as an additional country-level institutional control variable.

Worldwide Governance Indicators (WGI) index: following Kraay, Kaufmann, and Mastruzzi, (2010), we also control for the average of six corporate governance indices from the World Bank: (1) Voice and Accountability, (2) Political Stability and Absence of Violence/Terrorism, (3) Government Effectiveness, (4) Regulatory Quality, (5) Rule of Law and (6) Control of Corruption.

Gross Domestic Product (GDP) Growth: Macroeconomic conditions may influence the cash levels by affecting the opportunity cost of holding cash or by influencing investment



opportunities and uncertainty (Graham & Leary, 2018; Deloof et al., 2020). Thus, we also include GDP (Gross Domestic Product) Growth as additional control variable.

3.3. Final Regression Model

In addition to the aforementioned variables, we add country, industry and year fixed effects in our regression model. We opt to include industry and year dummies to control for industry specific factors and any macroeconomic events (Dittmar et al., 2003). Moreover, we also add country fixed effects to ensure that we are measuring within-country differences between public and private firms, as well as controlling for unobserved time-invariant country effects (Mortal et al., 2020). Thus, to test our research hypothesis, we estimate Equation 1 using Ordinary Least Squares (OLS) estimation with robust standard errors clustered at the firm level:

$$\begin{aligned} Cash_{it} = & \beta_0 + \beta_1 Listed\ Companies_{i,t} + \beta_2 Size_{i,t} + \beta_3 Dividend\ dummy_{i,t} \\ & + \beta_4 Cash\ Flow_{i,t} + \beta_5 Net\ Working\ Capital_{i,t} \\ & + \beta_6 Growth\ Opportunities_{i,t} + \beta_7 STD_{i,t} + \beta_8 Leverage_{i,t} + \beta_9 ROA_{i,t} \\ & + \beta_{10} Tangibility_{i,t} + \beta_{11} Age_{i,t} + \beta_{12} Investor\ Protection_{i,t} + \beta_{13} WGI_{i,t} \\ & + \beta_{14} GDP_{i,t} + Country + Year + Industry + u_{i,t} \quad (1) \end{aligned}$$

4. RESULTS

4.1. Descriptive statistics and correlations

Table 2 reports the descriptive statistics of the variables used in this research over the period 2000-2019. We first present in Panel A the means for each of the six countries and for the full sample of 46,040 firm-years observations. Panel B of Table 2, in turn, provides the mean and medians of the variables, as well as the *T*-test and the Wilcoxon rank-sum (Mann-Whitney) test for the means and medians difference tests between public and private firms.

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The results reported in Panel A of Table 2 indicate that for the whole sample of Latin American firms, cash holdings represent, on average, 5.19% of total assets. The average ranges from 3.94% in Peru to 6.66% in Mexico. Comparing with the findings of Opler et al. (1999), which find an average value of 17% in the U.S. setting, we show that Latin American companies keep significantly lower corporate cash holdings than U.S. firms. Furthermore, our sample is composed of 18.29% public companies. With 58.36%, Mexico is the country in the sample with the highest percentage of public companies relative to private firms, followed by Colombia with 55.78%, Peru with 54.89%, Chile with 36.02%, Argentina with 35.50% and Brazil with 7.23%. As mentioned previously, we use the natural logarithm of net assets and firm's age as our measures of firm size and age, respectively. Among the Latin American countries, Mexico (6.58) has the highest mean of size and Brazil (3.93) has the lowest. Regarding firms' age, we observe that Argentine companies are the oldest, while the Brazilian ones are the youngest.

Additionally, 41.19% of firms pay dividends. The mean ratio of cash flow to net assets is positive for all the countries in our sample, with an overall mean of 5.99%. Brazil has the lowest mean cash flow of 5.25% and Peru the highest with 8.92%. Investment in Net Working



Capital, which is a potentially relevant alternative source of cash holdings, is on average 8.17% of net assets. Further, the mean annual sales growth, as a proxy of growth opportunities, is 13.54%. Companies from Argentina has the highest mean of sales growth with 32.38%, while Peruvian companies has the lowest mean with 10.49%. The mean of short-term debt to net assets is 4.57%, while the mean value of leverage is 22.47%. Furthermore, the average firm in the sample has an average Return on Assets of 6.72%. Finally, the amount of Property, Plant and Equipment, as a percentage of net assets, is 35.17%.

Regarding the country-level institutional control, we note that Chile is the country with the highest investor protections (Anti-director rights index) with 5, while Mexico is the nation with the lowest score with 1. Moreover, compared with the other Latin American economies, Chile ranks much higher on the WGI index, followed by Brazil, Peru, Argentina, Mexico and Colombia. Finally, Peru is the country with the highest GDP growth (4.89) and Brazil with the lowest (0.67).

Turning to Panel B of Table 2, we first see that Latin American public companies hold significantly more cash and cash equivalents than their private counterparts: publicly traded companies hold 6.40% of their total assets in cash and cash equivalents, while private firms hold 4.91%. This difference is statistically significant at the 1% level and is consistent with the research hypothesis. Similarly, the Wilcoxon test indicates that the median cash holdings of public companies is significantly higher than that of private firms. Therefore, the results of the summary statistics provide some initial support for the research hypothesis, i.e., Latin American private firms maintain a lower proportion of their assets in cash and cash equivalents than do their publicly traded counterparts. In terms of the standard deviation, Latin American public companies have a higher value (6.82%) compared with their private counterparts (5.58%).

Panel B of Table 2 also shows that Latin American public companies differ from their private counterparts in some important dimensions. The results of the *T*-test suggest significant differences at least at the 10% level for all of the variables. For example, 62.48% of public companies pay dividends, while 36.42% of private firms pay dividends. Hence, Latin American public companies are more likely to pay dividends. Additionally, public companies have higher sales growth, which is used as a proxy of growth opportunities, suggesting that public firms in Latin America have greater growth opportunities than their private counterparts. Univariate tests also indicate that Latin American public companies have higher cash flows to net assets and have more tangible assets than private firms. Finally, the results reported in Panel B of Table 2 also show that Latin American public companies, on average, are larger, older, more profitable, and have more leveraged relative to privately held firms. Latin American private firms, in turn, have higher levels of net working capital and more short-term debt.

4.2. Cash holdings regressions

In this subsection, we test whether Latin American private firms maintain lower cash levels than their public counterparts using regression analysis. More precisely, in column 1 of Table 3, we analyze Equation 1 for the full sample of Latin American firms. In columns 2 and 3, we study the determinants of cash holdings in private and public companies separately. To conserve space, we do not tabulate the coefficients on the industry, country and year dummies in this and subsequent tables. Standard errors are clustered at the firm level. Unreported results of the Variance Inflation Factor (VIF) test indicate that multicollinearity is not a concern in our paper, given that all VIF values are below the threshold indicator of 10.



Table 3 presents the OLS results with country, industry and time fixed effects.

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The results displayed in Table 3 confirm the univariate findings from Table 3. Specifically, the results of Table 3 show a positive and significant coefficient on the public firm indicator variable, indicating that Latin American public companies hold significantly higher cash holdings. Therefore, we continue to find that public firms from Latin America hold more cash than their private counterparts when controlling for other determinants of cash levels. Overall, the above evidence supports our research hypothesis that private firms retain significantly less cash holdings. Hence, despite the fact that privately held firms arguably face higher financial constraints and would be expected to have a higher precautionary demand for cash holdings, we demonstrate that Latin American privately held firms hold less corporate cash holdings relative to their public peers.

Regarding the control variables, we observe that more profitable firms and those with higher cash flows maintain higher cash holdings. The estimate coefficient on sales growth is positive and significant at the 1% level, suggesting that Latin American firms with better investment opportunities maintain higher cash levels. This result is consistent with the argument that firms with more attractive growth opportunities tend to hold large amounts of cash in order not to be obliged to pass up profitable investment opportunities because they are short of cash resources. The result of the dividend dummy variable indicates that firms that pay dividends hold more cash holdings. This evidence, on the other hand, is contrary to the findings of Opler et al. (1999), who shows that firms that pay dividends accumulate less cash reserves. It is relevant to mention, however, that dividend-paying companies can also hold more cash than non-dividend paying firms to avoid a situation in which they are short of cash holdings to support their dividend policies (Ozkan & Ozkan, 2004). Another issue that should be mentioned is the fact that corporate law in Brazil requires all profitable Brazilian public companies to include in their Bylaws a percentage of annual profits, usually of 25%, to be paid out as dividends. Therefore, it is not so simple for profitable Brazilian public companies to cut dividends to raise more funds. Hence, the mandatory dividend rules in Brazil may have impacted the relationship between cash holdings and dividends in our paper.

Continuing with the results of Table 3, we find that leverage have a positive and significant relation with cash. The significant positive relationship between leverage and cash holdings is consistent with the argument of Ozkan and Ozkan (2004), suggesting that companies with high levels of leverage have high probability of financial distress. Interestingly, the coefficient estimate on firm age is positive and statistically significant at the 5% level. Hence, we document that older firms in Latin America hold more cash, which do not support the prediction of Mortal et al. (2020) that more mature companies require less cash holdings. The coefficients on size, net working capital, short-term debt and tangibility are not statistically significant at the conventional levels.

Regarding the results of the country-level control variables, we first find that the coefficient on shareholders rights, as measured by the anti-director rights index, is negative and statistically significant at the 1% level. This evidence is consistent with the findings of Dittmar et al. (2003) and suggests that Latin American firms with better investor protections stockpile lower cash holdings. Using cross-country data for 1998 from a sample of 45 countries, Dittmar et al. (2003) find that firms operating in countries characterized by weak investor protection



hold more cash than those operating in nations with strong investor protection. Dittmar et al. (2003) attribute their evidence to the agency cost hypothesis, that is, companies maintain higher cash reserves when they have the ability to do so. Therefore, the evidence of this paper suggests that shareholders rights, and therefore agency costs, are relevant in determining cash holdings in Latin America. Moreover, there is a negative and significant relationship between the WGI index and cash reserves. This means that when the country-level governance is weak, cash holdings are higher. Therefore, the worse is the country governance quality, the higher is the level of cash reserves. Finally, the coefficient on the GDP growth has a significant positive coefficient. This result indicates that firms from high-growth countries maintain higher cash levels in order to avoid missing profitable growth opportunities.

Having established that the results are consistent with the research hypothesis, we can now explore whether the determinants of corporate cash holdings are the same for private and public companies from Latin America. In this sense, in columns 2 and 3, we provide the regression results for private and public firms separately. Interestingly, the results suggest that net working capital is positively related to cash holdings for private firms, which does not support the argument that NWC is a substitute for cash holdings. For public companies, on the other hand, net working capital is not a significant determinant of cash levels. We also find that short-term debt is only statistically significant for public companies with a negative sign. Firms' age, in turn, is only statistically significant with a positive sign for private firms.

Furthermore, we now see that tangibility is a relevant determinant of cash levels for both public and private firms. It is relevant to note, however, that the coefficient is statistically significant with a positive sign for private firms and with a negative sign for public companies. Companies that should have greater access to the capital markets, as those that have greater asset tangibility, are expected to hold less cash. Therefore, the negative and statistically significant coefficient on tangibility for public companies are consistent with the precautionary motive for stockpiling cash holdings. Private firms, on the other hand, have less access to capital market and, consequently, presented a positive and statistically significant coefficient for tangibility.

Continuing with the findings of Table 3, the results show that there is a negative association between investor protections (shareholder rights) and cash levels, but only statistically significant at the conventional levels for public companies. According to Dittmar et al. (2003), companies raise and hold higher corporate cash holdings when they have the ability to do so – which is consistent with the agency cost hypothesis. As stated by Gao et al. (2013), private firms often have much fewer agency problems than publicly traded companies. Our interpretation of this result is that shareholder rights and, consequently agency costs, are more important in determining cash holdings in public companies than in privately held firms. Therefore, consistent with the agency motive for cash holdings, we observe that greater agency conflicts in Latin American public companies lead public company managers to choose to hold more cash holdings relative to private firm managers. Finally, we observe that the coefficients of GDP growth have a positive coefficient, but only statistically significant for private firms. The other results are qualitatively similar to those reported in column 1 of Table 3.

4.3. Robustness tests

In this subsection, we conduct several additional tests, but do not tabulate the results to conserve space, to study the robustness of our findings. In all the above analysis, we use the





natural logarithm of the ratio of cash and cash equivalents to net assets as a measure of cash holdings. Thus, as our first robustness check, we consider an alternative measure of cash. In fact, following Harford (1999), we use the natural logarithm of the ratio of cash and cash equivalents to total sales as our dependent variable. No other variables are redefined. The coefficient on the public firm indicator variable is 0.325 and is significant at the 1% level. Therefore, unreported results show that our main conclusions are robust to the use of an alternative measure of cash holdings.

Continuing, the number of companies differs sharply across our sample of Latin American countries. Brazil is heavily weighted in our analyzes because it is the country with the largest representation with 70.97% of the firm-year observations. One question that emerges from our research is whether a single country (Brazil) may be driving our results. To assess whether our results are driven by Brazil, we first reestimate Equation 1 without Brazilian firms. Untabulated results suggest that our main findings are the same when we remove Brazilian firms from the sample. Furthermore, one approach to deal with the concern that Brazil is driving our conclusions is to estimate a weighted least-squares regression. In this approach, every country has equal weight irrespective of the number of firms it has (Fernandes & Gonenc, 2016). Thus, as a further step, we also estimate Equation 1 using the WLS methodology with weights equal to the inverse of the number of firm-year observations in each country. The results obtained with the weighted least squares methodology complement our earlier findings: Latin American private firms hold significantly less cash holdings than their public counterparts. We conclude, consequently, that our results are not driven by the bigger representation of Brazil in our sample.

In our main analyses, we ran pooled OLS regressions with country, industry and year fixed effects. However, given that the decision to become a public company is not a random choice but a corporate decision, then studies involving public and private firms are subject to endogeneity concerns. According to Kim, Simunic, Stein and Yi (2011), firm fixed effects allow researchers to mitigate part of the potential problems of correlated omitted variables by controlling for unobservable, time-invariant and firm-specific characteristics. Furthermore, Mortal et al. (2020) indicates the use of firm fixed effects to exploit within firm variation in listing status while controlling form time-invariant firm characteristics. In this sense, instead of using the OLS procedure, we now estimate Equation 1 with firm fixed effects. Results not tabulated indicate that Latin American private firms hold significantly more cash holdings than their public peers. Therefore, even after controlling for firm fixed effects, we continue to find evidence consistent with our research hypothesis.

5. CONCLUDING REMARKS

Although private firms are the dominant organization form across the world, they have been largely neglected in the cash management literature, especially companies from emerging economies. In this research, we fill this gap in the literature by analyzing the determinants of cash holdings in private and public companies in the Latin American setting. We hypothesize in this paper that Latin American private firms maintain lower cash levels relative to their public peers. Toward our objective, we use a comprehensive sample of private and public companies from the six largest Latin American economies: Argentina, Brazil, Chile, Colombia, Mexico and Peru. The final sample includes 7,222 firms (46,040 firm-year observations). The data are from the Capital IQ database and cover the period from 2000 to 2019.





Supporting our research hypothesis, we find strong and robust evidence that Latin American private firms hold a lower proportion of their assets in the form of cash and cash equivalents than do their public peers. This result is relevant because it shows that private firms from Latin America maintain significantly less cash holdings than public companies, despite a higher precautionary demand for cash by the former. Overall, our findings are important, as we demonstrate that firms' cash holdings are significantly influenced by the business environment in which they operate. Hence, in the Latin American setting, where companies often have less access to external capital at a fair terms relative to companies from developed economies, we document that private firms maintain significantly less cash holdings. In this sense, our paper contributes to the tradeoff discussion between agency problems and precautionary motive for holding cash between public and private firms. Our main results hold after controlling for a large number of firm and country characteristics identified by prior research as determinants of cash levels.

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Table 1. Description of the variables

Variables	Abbreviation	Operational Definition
Cash Holdings	Cash	Natural log of (Cash and Cash Equivalents/Net Assets)
Net Assets	Net Assets	Total Assets net of Cash and Cash Equivalents
Dummy Public Company	Listed Companies	An indicator for the firm being listed = 1; otherwise = 0
Size	Size	Natural logarithm of Net Assets
Dividend dummy	DIV	If the firm paid a dividend in the year = 1; otherwise = 0
Cash Flow	Cash Flow	Cash Flow/Net Assets
Net Working Capital	NWC	(Non-Cash Current Assets - Current Liabilities)/Net Assets
Growth Opportunities	Growth Opportunities	The yearly growth rate of a firm's sales
Short-Term Debt	STDEBT	Short-Term Debt/Net Assets
Leverage	Leverage	The ratio of Total Debt/Net Assets
Return on Assets	ROA	Operating Income/Net Assets
Tangibility	Tangibility	Property, Plant and Equipment (PPE)/Net Assets
Age	Age	Natural logarithm of firm age
Investor Protection (Shareholders Rights)	Investor Protection	This index measures how strongly a legal system favors minority shareholders over managers or dominant shareholders in a corporate decision-making process, including the voting process. The Investor Protection (Shareholder Rights) variable goes from zero to five (La Porta et al., 1998).
The Worldwide Governance Indicators (WGI) index	WGI	WGI is the equal-weighted average of the six components of the Worldwide Governance Indicators: (1) Voice and Accountability, (2) Political Stability and Absence of Violence/Terrorism, (3) Government Effectiveness, (4) Regulatory Quality, (5) Rule of Law and (6) Control of Corruption.
GDP Growth	GDP	Growth in GDP per capita, obtained from the World Bank

Notes: Table 1 presents the description of the variables used in this paper. All financial variables are expressed in USD. To alleviate the undue effects of outliers and possible data errors, we winsorize all continuous variables at the 1st and the 99th percentile levels.



Table 2. Descriptive statistics

Panel A							
Variables	Argentina	Brazil	Chile	Colombia	Mexico	Peru	Full Sample
Cash/Total Assets	0.0443	0.0536	0.0394	0.0401	0.0666	0.0509	0.0519
Listed Companies	0.3550	0.0723	0.3602	0.5578	0.5836	0.5489	0.1829
Size	4.7842	3.9360	4.8171	5.5701	6.5847	4.7169	4.3056
Dividend dummy	0.3714	0.3848	0.5465	0.5473	0.4163	0.4703	0.4119
Cash Flow	0.0778	0.0525	0.0771	0.0624	0.0763	0.0892	0.0599
Net Working Capital	0.0742	0.0888	0.7469	0.0357	0.0588	0.0516	0.0817
Growth Opportunities	32.3899	13.0387	10.8948	13.9630	11.8783	10.4916	13.5471
Short-Term Debt	0.03584	0.0476	0.0429	0.0130	0.0319	0.0643	0.0457
Leverage	0.2498	0.2085	0.2862	0.1884	0.2881	0.2366	0.2247
Return on Assets	0.0864	0.0651	0.0528	0.0772	0.0785	0.0908	0.0672
Tangibility	0.3516	0.3191	0.4251	0.4697	0.4317	0.5011	0.3517
Age	4.4255	3.3339	3.6384	4.1542	4.0131	3.9269	3.5079
Investor Protection	4.0000	3.0000	5.0000	3.0000	1.0000	3.0000	3.1490
WGI	-0.2183	0.1338	0.9422	-0.3081	-0.2190	-0.2047	0.1574
GDP	1.9778	0.6715	3.6628	3.8431	2.1062	4.8900	1.4318
Observations (<i>n</i>)	2,194	32,684	5,046	1,045	2,702	2,379	46,040
Panel B							
Variables	Public Companies			Private Firms			
	Mean	Median	Stand. Dev.	Mean	Median	Stand. Dev.	
Cash/Total Assets	0.0640***	0.0385"	0.0682	0.0492	0.0269	0.0558	
Size	5.9632***	6.0221"	1.9330	3.9459	3.8914	2.1321	
Dividend dummy	0.6248***	1.0000"	0.4841	0.3642	0.0000	0.4812	
Cash Flow	0.0781***	0.0720"	0.1215	0.0558	0.0416	0.1542	
Net Working Capital	0.0778*	0.0580"	0.1915	0.0825	0.0382	0.2453	
Growth Opportunities	14.7718**	8.7904"	40.8326	13.2728	1.8589	50.9408	
Short-Term Debt	0.0282***	0.0000"	0.0631	0.0496	0.0000	0.0958	
Leverage	0.2546***	0.2448"	0.1863	0.2179	0.1504	0.2281	
Return on Assets	0.0749***	0.0658"	0.1159	0.0655	0.0516	0.1565	
Tangibility	0.4169***	0.4165"	0.2487	0.3371	0.2857	0.2870	
Age	4.1043***	4.0430"	1.2941	3.3743	3.4019	1.3033	
Observations (<i>n</i>)		8,421			37,619		

Notes: Table 2 provides the descriptive statistics of the variables used in this paper. Our sample consist of 7,222 Latin American firms (46,040 firm-year observations) from the six largest Latin American economies (Argentina, Brazil, Chile, Colombia, Mexico, and Peru) over the period of 2000-2019. The definitions of the variables are provided in Table 1. Panel A of Table 2 provides the number of observations and means of firm- and country-level variables for the Latin American countries. Panel B of Table 2 provides descriptive statistics of the firm-level variables used in the analyses. In Panel B of Table 2, we also test for the difference in the mean and the median value across public and private companies. ***, ** and * (" ", " " and ") indicate significance levels of 1%, 5% and 10% of the *T*-test (Wilcoxon Test) for public and private firms having equal mean (median).

Table 3. OLS estimation explaining the determinants of cash holdings

	Full Sample (1)	Private Firms (2)	Public Companies (3)
Variables	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)
Constant	-4.808 (***)	-5.066 (***)	-3.340 (***)
Listed Companies	0.420 (***)	-	-
Size	0.005	0.003	-0.026
Dividend dummy	0.532 (***)	0.544 (***)	0.437 (***)
Cash Flow	1.090 (***)	1.009 (***)	1.532 (***)
Net Working Capital	0.146	0.174 (**)	-0.163
Growth Opportunities	0.001 (***)	0.000 (***)	0.002 (***)
Short-Term Debt	-0.014	0.140	-1.102 (**)
Leverage	1.161 (***)	1.139 (***)	0.893 (***)
Return on Assets	0.982 (***)	0.952 (***)	1.276 (***)
Tangibility	0.044	0.176 (**)	-0.713 (***)
Age	0.034 (**)	0.036 (**)	0.016
Investor Protection	-0.288 (***)	-0.090	-0.413 (***)
WGI	-0.633 (***)	-0.482 (***)	-0.659 (***)
GDP	0.035 (***)	0.041 (***)	0.002
Observations	46,040	37,619	8,421
<i>p</i> -Value	< 0.001	< 0.001	< 0.001
Adjusted R ²	0.1031	0.0812	0.2317

Notes: Table 3 reports OLS estimation explaining the determinants of cash holdings in Latin America. The dependent variable is the natural logarithm of the ratio of cash and cash equivalents to net assets. The definitions of the other variables are provided in Table 1. Standard error estimates are clustered at the firm level. *, **, *** indicate the significance levels at 10%, 5% and 1% respectively.