

**AUDIT QUALITY AND THE MARKET VALUE OF CASH: THE ROLE-PLAYED
BY THE BIG 4 AUDITOR IN LATIN AMERICA****Aviner Augusto Silva Manoel***Universidade De São Paulo (Ribeirão Preto)***Marcelo Botelho Da Costa Moraes***Universidade De São Paulo (Ribeirão Preto)***Resumo**

Opportunistic behaviors create a wedge between the value of one dollar of cash held inside a firm and the value of a dollar paid out. In this paper we analyze whether audit quality, captured by a Big 4 membership, impacts the value that investors place on cash holdings in Latin America. For that, we used an unbalanced panel data comprising 494 Latin American public firms (4,026 firm-year observations) with annual data available from 2003 to 2018. We contribute to the literature by demonstrating that there is no clear influence of auditor choice on the value that investors place on cash in Latin America. Our findings also indicate that the market value of cash in Latin American firms is, on average, almost zero and in some countries even negative. Hence, we also contribute to the literature by identifying a greater discount for liquid assets in emerging economies. The results hold after a series of robustness checks, endogeneity concerns and self-selection bias. (JEL G32, G34).

Palavras-chave: Cash holdings; Corporate governance; Emerging markets; Auditor choice.

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Keywords: Cash holdings; Corporate governance; Emerging markets; Auditor choice.

1. INTRODUCTION

Investors need information that really reflect the reality of a company (Armstrong, Guay, & Weber, 2010). Financial statement are usually the principal means of communication to external shareholders (Khurana & Raman, 2004). Ensuring that the information disclosed actually represents the reality improves resource allocation and the efficiency in stakeholder decision making (Defond & Zhang, 2014). An independent high-quality audit, as a corporate governance mechanism, are an important institutional practice that increases the credibility of the financial reports that we tend to take for granted until a failure occurs (Francis, 2004; Defond & Zhang, 2014).

The quality of the audit, the work they perform and the opinions they provide are of interest to investors, regulators and society in general (DeAngelo, 1981; Francis, 2004). The quality of the financial reporting process, however, is expected to vary according to the quality of the auditor (Becker, Defond, Jiambalvo, & Subramanyam, 1998). Previous researches indicate that a Big 4 auditor¹ are more likely to provide greater assurance of high financial reporting quality when compared to smaller auditors (DeAngelo, 1981; Teoh & Wong, 1993; Becker et al., 1998; Francis, 2004; Defond, Erkens, & Zhang, 2017). The auditing literature also document that high-quality auditors are better able to detect questionable accounting practices, in a manner that, they can object to qualify the audit report in cases of errors and irregularities (Becker et al., 1998).

Since a Big 4 auditor are associated with improved financial reporting quality and more credible financial statements which, in turn, reduces information asymmetry and agency problems between the client firm and its stakeholders (Teoh & Wong, 1993; Francis, 2004; Fan & Wong, 2005; Rodríguez & Alegría, 2012; Defond & Zhang, 2014), then we expand the efforts in this research by analyzing whether the value that the market attributes to cash in Latin America is affected by the auditor choice (Big 4 or not).

We focus on cash holdings in this research for two reasons. First, cash is the most vulnerable asset to agent's opportunistic behavior, since it is less costly for self-interested

¹ The Big 4 auditor are Deloitte, Ernst & Young, KPMG, and PricewaterhouseCoopers. For convenience, we use the term Big 4 throughout this article as a generic one encompassing the Big 8, Big 6, Big 5 and Big 4 eras.

managers to consume private benefits attached to cash relative to other assets (Pinkowitz, Stulz, & Williamson, 2006; Dittmar & Mahrt-Smith, 2007; Bates, Kahle, & Stulz, 2009). Shareholders, aware of the vulnerability of the liquid assets, discounts the value of cash in organizations where governance mechanisms cannot mitigate management entrenchment related to its use (Dittmar & Mahrt-Smith, 2007; Masulis, Wang, & Xie, 2009). Second, because cash represents a significant part of firm's total assets and the literature document a secular increase in cash levels in the last years. This secular increase, in turn, has attracted much attention from both academic and popular press (Faulkender, Hankins, & Petersen, 2019).

The value that the market places on cash holdings is determined by how shareholders expect cash to be used. Opportunistic behaviors create a wedge between the value of one dollar of cash held inside a firm and the value of a dollar paid out. Therefore, an additional dollar of cash may not be worth one dollar to the market if entrenched managers use cash in a way to maximize their utility. The discounts on the cash held by a firm, on the other hand, can be mitigated by the existence and effectiveness of the monitoring mechanisms used to control the opportunistic actions of agent (Pinkowitz et al., 2006; Dittmar & Mahrt-Smith, 2007; Kalcheva & Lins, 2007; Pinkowitz & Williamson, 2007; Masulis et al., 2009; Drobetz, Grüninger, & Hirschvogel, 2010; Huang, Wen, & Zhang, 2019; Manoel & Moraes, 2019).

By hiring a high-quality auditor, a company is signaling to the market that the disclosed information are more relevant and reliable that aids in the effective monitoring of management and in the decision making (Huang et al., 2019). Moreover, Kim, Lee and Park (2015) obtained evidence that high-quality financial reporting helps stakeholders effectively monitor the outcome of large cash expenditure. To the extent that shareholders perceive a Big 4 auditor as providing a higher audit quality and more credible financial statements that effectively constraining cash improper diversion, then we hypothesize that organizations audited by a Big 4 receive, everything else equal, a higher value to each additional dollar of cash from the market. On the other hand, anticipating the greater potential that cash may be misspent by self-interested managers on poor acquisitions or on their own pet projects, then we expect that investor place a discount on the market value of cash in firms audited by a non-Big 4.

To date, the literature has offered only limited evidence about the role played by audit quality outside the U.S. market. In this research we attempt to gain a better understanding of the monitoring role of Big 4 versus non-Big 4 auditor on the value that shareholders place on a dollar of cash. Thus, the purpose of this article is to analyze if the auditor choice, *ceteris paribus*, influences the value that investors attributes to each additional dollar of cash held on balance sheet in Latin America (Argentina, Brazil, Chile, Colombia, Mexico, and Peru).

Latin America provide an excellent setting to analyze if the value that investors assigns to cash is higher for firms audited by a Big 4 in comparison to those audited by a non-Big 4. Firstly, most of the empirical research on audit focus on publicly traded companies in the United States. Unlike samples of U.S. public firms, where over 90% of the clients hire a Big 4 (Francis, 2004), our sample includes 80.38% of firms audited by a Big 4. Hence, our analysis with firms from Latin America benefits from ample variation in auditor choice relative to U.S. research.

Secondly, U.S. has a high litigation risk environment (Khurana & Raman, 2004), in a manner that, U.S. legal regime create a strong incentive for good auditing (Francis, 2004). In emerging economies², in turn, there are considerable differences in audit profession environments, from the quality of regulation to the degree of supervision and enforcement (Michas, 2011). Third, emerging markets can be characterized as having lower shareholders protection and greater ownership concentration (Lins, 2003; Fan & Wong, 2005; Chen, Hope, Li, & Wang, 2011). Overall, where the governance mechanisms are weak, extreme agency problems may arise because expropriation are large (Lins, 2003).

² The Standard and Poor's Emerging Market Database classifies all the countries from the sample as emerging economies. The classification is based on 2019 data.

Fourth, the value relevance of accounting information is lower in emerging markets relative to more developed countries (Chen et al., 2011) and little is known if the U.S. evidence on auditor choice can be generalized to audits in other countries, especially in emerging markets (Francis, 2004; Michas, 2011). Fifth, an investigation of audit quality in emerging countries is important because these countries need to attract international investors in order to develop their capital markets. These investors, in turn, suffer serious information problems, in a manner that, they are at an informational disadvantage in comparison to local investors (Michas, 2011). The above arguments highlights the need for additional studies that investigates variation in audit quality in emerging economies which, constitutes another contribution of our research.

In this sense, we aim to contribute to this debate in Latin America, by analyzing the role-played by audit quality on the value that shareholders places on cash. To determine the impact of audit quality on the value of cash holdings we adapted the valuation regression of Fama and French (1998) and used by Pinkowitz et al. (2006) and Dittmar and Mahrt-Smith (2007). For a sample of 494 Latin American public companies (4,026 firm-year observations) with data available over the period 2003-2018, we complement and extend Kim et al. (2015) research by providing evidence indicating that investors, *ceteris paribus*, do not place a higher value to cash in firms audited by a Big 4 relative to those audited by a non-Big 4.

Kim et al. (2015) investigate the role of high-quality auditors, proxied by office-level industry specialists, for a sample of U.S. public companies. Their results suggest that the value of cash is, on average, 34 cents higher for the clients of a joint (national- and city-level) leader in industry specialization. Thus, our findings do not support the existence of a Big 4 valuation premium in a different context from the North American one. Hence, our research have implications for the debate concerning the role played by audit quality, since we demonstrate that a Big 4 premium is not observed in the Latin America setting.

Moreover, our findings indicate that the market value of cash in Latin American firms is, on average, almost zero and in some countries even negative. This is consistent with investors concern that managers will waste cash on negative net present value (NPV) projects. Thus, we also contribute to the literature by identifying a greater discount for liquid assets in emerging economies. These findings are consistent with the free cash flow hypothesis and with the evidence of Pinkowitz et al. (2006), suggesting that cash is worth less than one dollar in countries with poor investor protection.

Our results are robust to a series of robustness checks, especially addressing the endogeneity problems related to auditor choice (Big 4 or non-Big 4). The remainder of this article proceeds as follows. In section 2 we review prior literature to develop our research hypothesis. In section 3, we describe our sample and explain the valuation regression model. In section 4 we present our main results, including a battery of robustness checks. Section 5 contains our conclusions.

2. HYPOTHESIS DEVELOPMENT

Keeping part of total assets in form of cash and cash equivalents provide benefits to companies in imperfect capital markets. Among these benefits the literature mention, for example, as financing day-to-day operations (Dittmar & Mahrt-Smith, 2007), avoiding transactional costs of raising funds (Dittmar, Mahrt-Smith, & Servaes, 2003; Faulkender & Wang, 2006), taking advantage of net present value projects when they arise (Opler, Pinkowitz, Stulz, & Williamson, 1999; Dittmar et al., 2003; Drobetz et al., 2010; Faulkender et al., 2019), reducing the problems associated with capital markets' imperfections (Faulkender & Wang, 2006), serving as a buffer against adverse cash flow shocks and meeting unexpected contingencies (Opler et al., 1999; Bates et al., 2009).

However, cash holdings also have a dark side. Investment in liquid assets is costly because a company foregoes investments in more profitable assets. Moreover, cash holdings also expose firms to managerial opportunism, since cash can be turned into private benefits³ at lower cost relative to less liquid assets (Opler et al., 1999; Dittmar et al., 2003; Dittmar & Mahrt-Smith, 2007; Masulis et al., 2009). In the same way, cash-rich firms are more likely to be affected by the free cash flow problem describe in Jensen (1986). The evidence of Dittmar and Mahrt-Smith (2007) corroborates the above arguments, since they find that firms with both excess cash and poor governance experience low operating performance.

In this sense, given that cash can be a double-edged sword (Opler et al., 1999), the literature indicate that liquidity should be valued by investors based on whether it prevents underinvestment problems in positive NPV projects and whether cash facilitates overinvestment in negative NPV projects (Pinkowitz et al., 2006; Dittmar & Mahrt-Smith, 2007; Kalcheva & Lins, 2007). Investors recognize the risk of cash expropriation in firms with weak governance mechanisms. As a consequence, they penalize the market value of cash in companies where private benefits constitute a substantial part of firm value. Conversely, in firms where insiders act in the best interest of shareholders, then the market should give a higher value to each additional dollar of cash in these firms (Pinkowitz et al., 2006; Dittmar & Mahrt-Smith, 2007; Masulis et al., 2009; Manoel & Moraes, 2019).

In other words, the value-destruction associated with cash can be detrimental to shareholders if the governance mechanisms fail to align the interests of agent with those of principal, that is, when agency problems exist. Governance mechanisms, however, improves the use of cash holdings by improving the returns from operations and also by limiting self-serving behavior (Dittmar & Mahrt-Smith, 2007).

Corporate governance can be view as a set of contracts that help to align the actions of agents with the interests of principal. The need for governance mechanisms arises from the fact that agent may not necessarily act in the best interest of principal (Armstrong et al., 2010). Among the governance mechanisms, auditing is an important monitoring activity that have the potential to increase the value of a company (Jensen & Meckling, 1976).

Audits can discipline the activities of a company by reducing agency problems and strengthening risk managements and internal controls (Jensen & Meckling, 1976; Watts & Zimmerman, 1983; Becker et al., 1998). Previous research also suggest that external audit is useful for controlling agency costs associated with current investments projects (Kim et al., 2015). The success of an audit lies in reducing the opportunistic behavior costs. For that, the auditor must prepare the financial statements in accordance with the current legislation, provide reliable information about the reality of a company and report breaches of contract if necessary (Watts & Zimmerman, 1983; Teoh & Wong, 1993; Defond & Zhang, 2014).

In this way, the literature defines the audit quality construct in terms of the level of assurances as the probability that the financial statement contain no material omissions or misstatements (Palmrose, 1988). The auditor's role, however, is not only to ensure that the financial statements are presented in accordance with current legislation, but also for how well the financial statements reflect a firm's economics reality (Defond & Zhang, 2014).

The quality of audit, on the other hand, is not a public information and cannot be directly observed by users. The main observable outcome of an external audit is the standardized audit report. As a result, stakeholders impute the quality of the audit based on the reputation of the auditor (DeAngelo, 1981; Francis, 2004; Khurana & Raman, 2004; Defond & Zhang, 2014). Thus, the literature suggest that a Big 4 auditors (Deloitte, KPMG, PWC and Ernst & Young) are more likely to provide high-quality audit (DeAngelo, 1981; Becker et al., 1998; Khurana & Raman, 2004; Defond & Zhang, 2014).

³ Expropriation of shareholders can take a variety of forms, such as the consumption of perquisites, empire building, excessive salaries and even by theft.

The Big N auditors, addressed in the literature as Big 8, Big 6, Big 5 and currently Big 4 in chronological order, after the mergers and even the most recent scandals involving Arthur Andersen, are recognized around the world by providing higher-audit quality in order to maintain their brand-name reputation (DeAngelo, 1981; Francis, 2004; Khurana & Raman, 2004). These auditors invest more in technology, training and process, which in turn, enable them to carry out audits more efficiently (Defond & Zhang, 2014).

Furthermore, no single client is important to a Big 4 since the auditor has a greater reputation to maintain around the world (their entire clientele) if they misreport, i.e., providing an unqualified opinion on materially misstated financial statements. On the other hand, an auditor with one or few clients does not have the same incentives to protect their reputation and to avoid costly litigation (DeAngelo, 1981; Palmrose, 1988; Francis, 2004).

Previous literature also documents that financial statements audited by a Big 4 auditor are more credible, since these auditors provide independent assurance that the accounting numbers have been properly applied in accordance with current legislation⁴ (Teoh & Wong, 1993; Defond & Zhang, 2014). Moreover, high-quality audit helps to reduce the level of information asymmetry between insiders and outsiders, thereby mitigating the problems of selection adverse and moral hazard (Francis, 2004; Fan & Wong, 2005). As a consequence, shareholders are better able to monitor managers' activities in companies audited by a Big 4 (Francis, 2004; Fan & Wong, 2005).

Kim et al. (2015) complements by indicating that high-quality audits, proxied by office-level industry specialists, can discipline managers to reveal information regarding their inefficient use of resources. Their findings also support the hypothesis that high-quality audits reduce the misallocation of cash to unprofitable projects. These arguments, however, do not suggest that a Big 4 audit is always superior. Both small and large auditors can potentially conduct a competent audit process in accordance with current legislation. Indeed, the above evidence means that, on average, Big 4 audits are of higher quality than small audit firms (DeAngelo, 1981; Francis, 2004). Therefore, in this research we use the Big 4/non-Big 4 dichotomy to distinguish between high and low quality auditors. Consistent with previous studies in emerging economies, we do not distinguish between Big 4 auditors and Big 4 affiliated firms (Fan & Wong, 2005; Michas, 2011).

The literature documents that investors discount the market value of cash at poorly governed firms, since they do not expect to receive the full benefits of cash (Dittmar & Mahrt-Smith, 2007). In the same way, Drobetz et al. (2010) point out that the stock market assigns a lower value to cash in firms with higher information asymmetry. Hence, if shareholders believe that firms audited by a Big 4 have greater protection against cash expropriation by entrenched managers, then one dollar of cash, *ceteris paribus*, should be more valuable to them. In companies audited by a non-Big 4, on the other hand, shareholders expect cash holdings to be partly wasted by managers on poor acquisitions or on their own pet projects. Thus, we hypothesize that the market discounts more the cash of non-Big 4 clients. Based on the above arguments, our hypothesis is:

***Ceteris paribus*, a dollar of cash is more valuable for shareholders in companies audited by a Big 4 auditor in Latin America than for those companies audited by a non-Big 4.**

Despite the above arguments, there are also reasons to support that a high-quality audit, proxied by the selection of a Big 4 auditor, does not lead to a higher valuation of cash from the market. First, there are other governance mechanisms that public companies can use in substitution or complementing of audit quality. In addition, public firms are under the supervision of market authorities and financial analysts, which provide additional protection to

⁴ In the case of Latin America, in accordance with the IFRS (International Financial Reporting Standards).

shareholders (Rodríguez & Alegría, 2012). Therefore, public firms are located in an environment of abundant information when compared, for example, with privately held firms (Rodríguez & Alegría, 2012). In this context, the quality of audit may not produce an increase in the amount of available information. The above arguments suggests that public companies are in an environment of abundant information and that other governance mechanisms can complement and/or substitute the protection of shareholders, thereby reducing the incremental value of audit quality for these organizations.

Second, Big 4 and non-Big 4 auditors are held to the same regulatory and professional standards. Thus, audits conducted by both must adhere to a reasonable level of quality (Lawrence, Minutti-Meza, & Zhang, 2011). Finally, Lawrence et al. (2011), for example, point out that the Big 4 premium find in previous studies could simply reflect client and not auditor characteristics. According to this second viewpoint, we can also expect that shareholders do not place a higher value to cash, *ceteris paribus*, in firms audited by a Big 4 relative to those audited by a non-Big 4. Hence, the null hypothesis is that the market value of cash is uniform in firms audited by a Big 4 and non-Big 4.

3. RESEARCH METHODOLOGY

3.1. The sample

We use in this article data from the six largest Latin American economies (Argentina, Brazil, Chile, Colombia, Mexico, and Peru) over the sample period of 2003-2018. The sample starts in the fiscal year 2003 because this was the first year of the Big 4 era⁵. All the financial statement data are in thousands of U.S. dollars for comparative purposes. Our sample include surviving and nonsurviving companies with data available from Thomson Reuters database at any time in the sample period.

We remove from the sample financial and utilities firms because their cash policies are influenced by statutory capital requirements and other government regulations (Opler et al., 1999; Dittmar & Mahrt-Smith, 2007; Bates et al., 2009). Finally, we also eliminate those companies that presented negative equity in each respective financial year to avoid capturing the effects that may be related to financial distress (Lins, 2003). Hence, our final sample includes 494 Latin American public firms (4,026 firm-year observations) with annual data available from 2003 to 2018.

3.2. Market Value of Cash

To test our hypothesis, we used the valuation regression developed by Fama and French (1998) and adapted by Pinkowitz et al. (2006) and Dittmar and Mahrt-Smith (2007). The model can be observed as follows:

$$V_{i,t} = \alpha_i + \beta_1 E_{i,t} + \beta_2 dE_{i,t} + \beta_3 dE_{i,t+1} + \beta_4 dNa_{i,t} + \beta_5 dNa_{i,t+1} + \beta_6 RD_{i,t} + \beta_7 dRD_{i,t} + \beta_8 dRD_{i,t+1} + \beta_9 I_{i,t} + \beta_{10} dI_{i,t} + \beta_{11} dI_{i,t+1} + \beta_{12} D_{i,t} + \beta_{13} dD_{i,t} + \beta_{14} dD_{i,t+1} + \beta_{15} dV_{i,t+1} + \beta_{16} dCash_{i,t} + \beta_{17} dCash_{i,t+1} + \epsilon_{i,t} \quad (1)$$

Where V denotes the market value of the firm (Market-to-Book), which is calculated at fiscal year-end as the sum of the market value of equity and the book values of short-term and long-term debt; E is earnings before interest and extraordinary items (after depreciation and taxes); NA is net assets (total assets minus cash); $Cash$ is the sum of cash and cash equivalents;

⁵ Our main findings are robust to extending the sample period back to 1999.

RD is research and development (R&D) expenditure; I is interest expense; D is total dividends paid. All variables are normalized by the Book Value of Assets of the firm to make firms attributes comparable (Pinkowitz et al., 2006; Frésard & Salva, 2010). Furthermore, X_t is the level of variable X in year t scaled by total assets in year t ; dX_t is the change in the level of X from year $t - 1$ to year t scaled by total assets in year t , that is, $((X_t - X_{t-1})/Total Assets_t)$; dX_{t+1} is the change in the level of X from year $t + 1$ to year t scaled by assets in year t , that is, $((X_{t+1} - X_t)/Total Assets_t)$;

Due to the small number of firms with data available about research and development (R&D) expenditure in the sample and also because growth opportunities are an important determinant of the market value of cash (Pinkowitz & Williamson, 2007), we opt to use the yearly growth rate of a firm's sales as an alternative proxy for this construct. In addition, we also include GDP and country dummies to control for cross-country differences. We winsorized the continuous variables at the 1 and 99 percentiles to mitigate the influence of the extreme values⁶ and possible inaccuracies in the data. To analyze the market value of cash, we use Equation 2 separately for firms audited by a Big 4 and by a non-Big 4.

$$\begin{aligned} V_{i,t} = & \alpha_i + \beta_1 E_{i,t} + \beta_2 dE_{i,t} + \beta_3 dE_{i,t+1} + \beta_4 dNa_{i,t} + \beta_5 dNa_{i,t+1} \\ & + \beta_6 Growth\ Opportunities_{i,t} + \beta_7 I_{i,t} + \beta_8 dI_{i,t} + \beta_9 dI_{i,t+1} + \beta_{10} D_{i,t} \\ & + \beta_{11} dD_{i,t} + \beta_{12} dD_{i,t+1} + \beta_{13} dV_{i,t+1} + \beta_{14} dCash_{i,t} + \beta_{15} dCash_{i,t+1} \\ & + \beta_{16} GDP_{i,t} + \epsilon_{i,t} \quad (2) \end{aligned}$$

The coefficient on the change in cash holdings (β_{14}) can be viewed as a measured of the market value of cash that investors place on a dollar of cash. The test of our hypothesis is that this coefficient is larger (lower) for firms audited by a Big 4 (non-Big 4). In the initial analyzes we tackle with the question of endogeneity by using a fixed effect model, following the empirical evidence of Lennox, Francis, and Wang (2012). The fixed effect model partially mitigate the endogeneity problems and also control for firm's unobservable effects and for omitted variable bias by controlling for unobservable, time-invariant firm-specific characteristics (Lennox et al., 2012). We admit, however, that it does not completely solve the endogeneity concerns. Given this potential problem, in the robustness checks subsection we repeat our main analysis by using a Heckman two-stage approach to correct for potential selection bias due to the non-randomness of our sample.

3.3. Descriptive statistics

Table 1 presents the descriptive statistics of our variables and also information on the number of firms available in our sample. There are 4,026 firm-year observation in our full sample of Latin American firms, of which 80.38% are Big 4 clients. Chile has the highest percentage of Big 4 auditors with 90.50%, followed by México with 89.92%, Peru with 85.56%, Brazil with 76.97%, Colombia with 75.00% and Argentina with 62.88%. The mean values for total assets and sales for Latin American firms are \$3.1 million and \$1.6 million, respectively. Latin American firms is growing (one-year growth rate in sales) at about 10.31% per year.

Regarding firm value, we note that companies' market values are higher for Brazilian (1.058) and Mexican (1.074) enterprises. In addition, the mean of Market-to-Book for the full sample is 0.97. Table 1 also shows that the average value of cash to total assets is 8.43%, which ranges from a low of 5.30% for firms from Colombia to 9.59% for Brazilian firms. When we

⁶ Unreported results indicate that our main findings are robust regardless the continuous variables are winsorized.

measure cash holdings by the ratio of cash and cash equivalents to net assets, the mean is 10.40% for the full sample.

Table 1. Descriptive Statistics

Country	N	Big 4 Market Share	Cash/ Total Assets	Market -to-Book	Total Debt	Growth Opportunities	Size	Revenue
Argentina	361	62.88%	8.49%	0.886	21.52%	12.38%	8,57	5,54
Brazil	2019	76.97%	9.59%	1.058	27.64%	12.83%	54,91	28,90
Chile	442	90.50%	6.80%	0.808	25.23%	6.19%	25,22	14,07
Colômbia	80	75.00%	5.30%	0.666	17.51%	4.33%	23,78	13,86
México	764	89.92%	8.30%	1.074	25.73%	6.67%	21,81	15,78
Peru	360	85.56%	4.77%	0.705	24.09%	8.25%	8,95	6,25
Full Sample	4026	80.38%	8.43%	0.979	25.95%	10.31%	31,30	16,16

Notes: Big 4 market share is the percentage of Big 4 clients in each country; Cash/Total Assets is the ratio of Cash and Cash Equivalents to Total Assets; Cash/Net Assets is the ratio of Cash and Cash Equivalents to Net Assets, that is, Total Assets minus Cash and Cash Equivalents; Market-to-Book was calculated at fiscal year-end as the sum of the market value of equity and the book values of short-term and long-term debt divided by the book value of assets; Total Debt is the sum of Short and Long Term Debt to Total Assets; Growth Opportunities is the yearly growth rate of a firm’s sales; Size is the sum of Total Assets in \$ million; Revenue is the sum of Total Revenues in \$ million.

4. RESULTS

4.1. Main Results

Table 2 reports the results of our valuation model described in Equation (2). The valuation regression has the Market-to-Book as the dependent variable. In the first column, we estimate the value of cash for the whole sample of firms from Latin America. On columns two and three we show the results for firms audited by a Big 4 and by a non-Big 4, respectively. In the subsequent columns we present the results for each country separately. Regrettably, we did not report the results for some subsamples because the limited sample size and the number of independent variables in our valuation model leaves too few degrees of freedom available for reliable estimation. We also report in Table 2 the highest variance inflation factors (VIF) of each regression to see if we have multicollinearity problems. As observed, multicollinearity is not a concern since all the highest VIF are below the threshold indicator of 10.

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INSERT TABLE 2 HERE

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The coefficient (β_{14}) of column A indicate that a dollar of cash in Latin America is only valued by shareholders at \$0.020 cents. Although this value is not statistically significant, we find that the market value of cash is significantly negative in most countries when we analyze each one individually. Our findings, for example, suggest that the stock market places a value of - \$ 1,690 and - \$ 0.971 for companies in Colombia and Mexico, respectively. Based on the coefficient estimates in each regression we also found that Brazil was the only country in Latin America with a market value of cash positive and significant. We find that the marginal value of cash is \$0.235 cents in this country. The coefficients (β_{14}) obtained reflects the magnitude of the potential for value destruction perceived by shareholders in firms from this region. Hence, in the context of Latin American public firms, we verified that investors do place a lower and even a negative value on a firm’s cash holdings because they expect cash to be wasted on low-return projects or on empire building.

As stated in agency theory, if the agent's interests are not aligned with those of the principal, then agent can use of his/her privileged situation to maximize his/her utility function at the principal's expense (Jensen & Meckling, 1976). The opportunistic behavior, in turn, reduces the total product of a company and hence its value (Watts & Zimmerman, 1983). Overall, our findings are consistent with this theory and suggest that when expected agency conflicts are large and cash are freely accessible to managers, shareholders identify the potential benefits embodied in cash and consequently discount their value.

This evidence is consistent with the findings of Pinkowitz et al. (2006), which document that cash worth less to shareholders in countries with low investor protection. The authors, analyze the impact of various governance regimes on the value of cash and dividends. In one of their specification, for example, Pinkowitz et al. (2006) find that cash is worth \$0.91 in countries with above-median investor protection and \$0.33 in the countries with poor investor protection. Poor protection of minority shareholders, generally associated with emerging markets, makes it easier for insiders to expropriate liquidity assets for their own benefits.

As pointed out by Masulis et al. (2009), entrenched managers will consume more private benefits in companies where the opportunities to do so are greater. Consequently, shareholders place a lower value on cash holdings in countries where expropriation of cash constitute a substantial part of firm value because they do not expect to receive the full value of liquid assets. Our results, therefore, support the free cash flow hypothesis and the evidence of Pinkowitz et al. (2006) that cash worth less in countries in which investor protection is weaker.

Another possible explanation for investors attributing a negative value to cash in some Latin American countries is that firms from these countries suffer from more agency problems due to poor corporate governance standards. As explained by Jensen (1986), if left unmonitored, self-interested managers may waste free cash flow. In this regard, Dittmar and Mahrt-Smith (2007) document that the value of a dollar of cash is substantially less if a firms has poor governance (between \$0.42 and \$0.88) relative to well-governed ones (\$1.62). They attribute these results to the fact that in well governed companies cash are better “fenced in”, while in poor governed ones, cash are dissipated more quickly on less profitable investments. Put another way, poorly governed companies dissipate cash in ways that destroy operating performance and, thereby destroy firm value. Investors, aware that entrenched managers waste cash, discount the value of cash in firms with weaker corporate governance structures.

Furthermore, Pinkowitz and Williamson (2007) provide evidence that the market value of cash holdings vary with differences in firm characteristics and industries. Their evidence, for example, indicate that computer software firms (\$1.61) have the highest market value of cash, while firms in commodity and manufacturing industries, especially those from coal industry (-\$1.06), have the lowest market values. Taken together, the evidence of Pinkowitz and Williamson (2007) is consistent with the hypotheses that the value of cash should be positively related to the amount and the quality of the firm's investment opportunities and positively related to the uncertainty of a firm's investment program.

The economic base of Latin American countries, as in most developing countries, is the primary sector⁷. This sector, in turn, is not characterized as growth industries, for which the authors obtained evidence that the market places a higher value on cash. The results obtained for the proxy of investment opportunities used corroborates with this findings. As reported in Table 2, we can observe that firms with better growth opportunities are valued higher.

Of the other control variables, we can observe that most of them are statistically significant in the predicted directions relative to previous researches on the market value of cash (Pinkowitz et al., 2006; Dittmar & Mahrt-Smith, 2007; Masulis et al., 2009). For example,

⁷ Regrettably, due to the limited number of companies with available information we were unable to see whether the value of cash in Latin American varies by industry.

dividends and the earnings variable presented a positive and significant coefficients in the models. In the same way, the coefficient of the GDP, as a measure of economic development, reveal that the higher the GDP, the higher the market value.

In sequence, when the sample is partitioned by auditor choice, we observe that that audit quality, measured by the Big 4/non-Big 4 dichotomy, play a smaller or no governance role in the cash improper misuse in Latin American firms. As stated in Table 2, we find that the market value of cash are not statistically different in firms audited by a Big 4 relative to those Latin American companies audited by a non-Big 4. At first glance, this result could appear contradictory. However, public companies are located in an environment of abundant information. In this context, a possible explanation for our results is that financial statements audited by a Big 4 do not produce a significant increase in the amount and quality of the information disclosed, thereby do not leading to investors placing a higher value to cash in Big 4 clients relative to non-Big 4.

Furthermore, the literature document, see Rodríguez and Alegría (2012) for instance, that the demand for monitoring mechanism in public companies are often satisfied using other governance mechanism that complement and/or substitute audit quality. In addition, these firms are under the supervision of market authorities and are analyzed by financial analysts, which provide additional protection to shareholders. Finally, public companies also reveal financial information more often and with greater detail. In sum, public companies are located in an environment of abundant information, thereby reducing the incremental value of audit quality for these firms. Hence, our results do not support the existence of a Big 4 premium relative to the value that investors assigns to an additional dollar of cash held on balance sheet in Latin America, which leads to the rejection of our hypothesis.

In a similar paper, Kim et al. (2015) obtained evidence, based on a sample of U.S public firms, that high-quality audit play a different and incremental role that reduce the risk of cash improper diversion. As a result, investors place a valuation premium of 34 cents for each additional dollar of cash for the clients of a joint (national- and city-level) leader in industry specialization. Our findings, on the other hand, suggest that the appointment of a Big 4 auditor, as a proxy of the audit quality construct, does not lead to an increase in the value that the market attaches to a firm's cash holdings.

We mention, however, that there are several important differences between our setting and the North American one of Kim et al. (2015). In contrast to the high litigious environment and to the strong incentive for good auditing in the U.S. market (Francis, 2004; Khurana & Raman, 2004), audit profession in emerging economies lacks even basic audit rules, guidelines and regulations (Michas, 2011). The differences in the institutional setting may explain, at least in part, why firms do not benefit from a Big 4 premium relative to the value investors place on each additional dollar of cash when hiring a Big 4 auditor. So, it is possible that for firms from Latin America shareholders do not observe audit quality differentiation.

Although our results are contrary to the initial hypothesis, recent research challenges previous evidence that Big 4 auditors conduct higher quality audits relative to non-Big 4 (Lawrence et al., 2011; Lennox et al., 2012; Defond et al., 2017). The evidence of Lawrence et al. (2011), for example, suggest that the Big 4 premium find in the previous researches is due to client-specific characteristics, such as firm size, that lead to problems of selection bias. Hence, the problems related to self-selection bias may be leading to incorrect inferences about Big 4 auditors. In the next subtopic, we will tackle with this issue by using the procedure developed by Heckman (1979).

4.2. Robustness checks

In this subsection, we performed various analyses to check the robustness of our findings. To be concise, we did not report the results. As the first robustness check, we analyze whether our results hold for an alternative proxy for firm value. Thus, we re-estimate our initial model with the Tobin's Q being our measured of firm valuation instead of Market-to-Book. Unreported results show that our main findings are robust using another measure of firm value. The results for the control variables are also similar to those reported before.

Second, following Faulkender and Wang (2006), we include year dummies to control for the year effects that may be correlated with changes in firm characteristics. Unreported results show that our main findings are qualitatively unchanged. As a third robustness check, we remove from our sample the Latin American firms that cross-list its shares in the U.S. exchange through ADRs (American Depositary Receipts). Cross-listing in the U.S. improves disclosure and investor protection, which limits the consumption of private benefits by self-interested managers (Frésard & Salva, 2010). The findings of Frésard and Salva (2010) corroborates with this, since they find that shareholders place a higher value on excess cash of foreign companies with ADRs. In this sense, we re-run the initial model without those Latin American companies (337 observations) that cross-list its shares in the U.S. exchange. In untabulated results, however, we show that our main findings are qualitatively the same without these firms.

Previous studies point out that it is not valid to treat the auditor size dummy as an exogenous variable because auditor are not randomly assigned to client firms. Factors that are unobservable to researches may affect a firm's decision to hire a Big 4 auditor (Ireland & Lennox, 2002; Chaney, Jeter, & Shivakumar, 2004; Clatworthy, Makepeace, & Peel, 2009). The literature indicate, for instance, that firms with greater agency problems are more likely to hire a Big 4 (Fan & Wong, 2005). In addition, Francis (2004) suggest that "good" companies are more likely to hire high-quality auditors. In other words, it is not high-quality auditing that improve the value that investors place on cash; rather, auditor choice is endogenous and it may simply be that "good" firms select a Big 4 auditor (Defond et al., 2017). Hence, researches cannot ruled out that any difference in audit quality related with Big 4 auditors could simply reflect the impact of unobservable firm or auditor characteristics that drive companies' auditor choices (Lawrence et al., 2011; Lennox et al., 2012; Defond et al., 2017).

Self-selection bias is a major concern in the audit literature, which casts doubts on the existence of a Big 4 effect (Lawrence et al., 2011; Lennox et al., 2012; Defond et al., 2017). Therefore, the auditing literature indicate that conventional Ordinary Least Squares estimates of the Big 4 premium are potentially biases (Chaney et al., 2004; Clatworthy et al., 2009). In this sense, aiming to increase the validity of this study and to address the self-selection bias of the auditor choice, we also employ a Heckman's (1979) two-stage procedure with corrected standard errors.

In the first stage (selection equation), we estimate a probit regression where the dependent variable is a dummy that equals 1 if a firm is audited by a Big 4 auditor (including affiliated) in year t, and 0 otherwise. We follow the articles of Ireland and Lennox (2002), Chaney et al. (2004) and Lennox et al. (2012) and include these variables as instruments: Size (log of total assets); Asset turnover (sales/total assets); Leverage (total debt/total assets); Return on Assets (earnings before interest and taxes divided/total assets); Return on Assets*Loss (return on assets multiplied by 1 if a company has negative net income, and multiplied by 0 otherwise) Current Assets (current assets/total assets); LTD (long-term debt/total assets).

$$\text{Probit Regression: } Big\ 4 = \alpha_1 + \alpha_2 Size_{i,t} + \alpha_3 Asset\ Turnover_{i,t} + \alpha_4 Leverage_{i,t} + \alpha_5 ROA_{i,t} + \alpha_6 ROA * Loss_{i,t} + \alpha_7 Current\ Assets_{i,t} + \alpha_8 LTD_{i,t} + u_{i,t} \quad (3)$$

$$\text{OLS Regression: } V_{i,t} = \alpha_i + \beta_1 E_{i,t} + \beta_2 dE_{i,t} + \beta_3 dE_{i,t+1} + \beta_4 dNa_{i,t} + \beta_5 dNa_{i,t+1} + \beta_6 \text{Growth Opportunities}_{i,t} + \beta_7 I_{i,t} + \beta_8 dI_{i,t} + \beta_9 dI_{i,t+1} + \beta_{10} D_{i,t} + \beta_{11} dD_{i,t} + \beta_{12} dD_{i,t+1} + \beta_{13} dV_{i,t+1} + \beta_{14} dCash_{i,t} + \beta_{15} dCash_{i,t+1} + \beta_{16} GDP_{i,t} + \beta_{\lambda_j} \lambda_{j,i} + \epsilon_{i,t} \quad (4)$$

In the second stage, the inverse Mill's ratio (IMR) obtained in the first stage are included as an additional explanatory variable to control for potential self-selection bias. Unreported results of the first-stage probit estimations indicate that all variables used, except leverage, were significant at the 1% level. The coefficients obtained of Equation 3 show that larger, more profitable firms and those with high asset turnover and with higher long-term debt are more likely to appoint a Big 4 auditor. The presence of a recent loss (ROA*Loss) and Current Assets, on the other hand, are negatively associated with a Big 4 auditor. In sum, the results of the probit regression indicated that the variable suggested by Ireland and Lennox (2002) and Chaney et al. (2004) are relevant in explaining the auditor choice.

Using the Ordinary Least Squares (OLS) model with the inverse Mill's ratio (IMR)⁸, we reject the null hypothesis that clients are randomly allocated across Big 4 and non-Big 4 auditors. In spite of the presence of selection bias, the results of the two-stage Heckman approach continue to support the nonexistence of a Big 4 premium relative to the value that investors attributes to cash in Latin American firms. Collectively, the results of this subsection support the results in the main analysis, indicating that shareholders do not perceive any governance benefit associated with a Big 4 auditor related to the market value of cash. As a result, they do not place a higher value to cash in Big 4 clients. Hence, we fail to find any difference on the value that investors place on cash between firms audited by a Big 4 and non-Big 4.

5. CONCLUDING REMARKS

In this research we analyze whether the value that shareholders attributes to cash in Latin America is affected by the auditor choice (Big 4 or not). More specifically, we expect that investors attach a greater value to liquid assets, the assets that are particularly at risk of being wasted on low-return projects or on pet projects, in firms audited by a Big 4 relative to those audited by a non-Big 4. We fail to find any difference in the value that investors place on each dollar of cash between Big 4 and non-Big 4 clients. Hence, our findings do not indicate a valuation premium for an additional dollar of cash in Latin America for Big 4 clients relative to non-Big 4 clients, implying that the hiring of a Big 4 auditor may not be a credible signal of stronger corporate governance in the Latin America setting. Thus, we contradict previous literature that suggest that high-quality audits contribute to the increase in the market value of cash. Our results are robust even after controlling for self-selection bias and to a number of sensitivity tests.

We also find that the value investors place on the marginal unit of cash in Latin America is, on average, \$0.020 cents. Therefore, our research support the free cash flow hypothesis, in which, cash is worth less than one dollar in countries where shareholders protection is poorer. Our findings also extend the results of Pinkowitz et al. (2006) and Dittmar and Mahrt-Smith (2007), since we find that cash worth less in Latin America relative to their evidence with develop economies. We attribute these findings to the fact that investors do not expect to receive

⁸ The econometrics literature point out that the Heckman model is sensitive to severe collinearity problems (Clatworthy et al., 2009; Lennox et al., 2012). However, we mention that multicollinearity is not a concern in our selection model, as VIF values are below 10 in all models.

the full benefits of cash in Latin American companies and, consequently, they value cash holdings at a sizable discount.

We admit that our article certainly does not decisively settle whether the presence of a Big 4 auditor benefits Latin American public companies. In this sense, new researches can analyze, for example, whether the cost of debt is affected by auditor choice in emerging economies. New researches about this topic can complement our evidence regarding the role played by audit quality outside the U.S. market.

Our article is subject to some important caveats. First, we cannot rule out that the small sample size in some countries, especially for Argentina, Colombia and Peru, cause the lack of statistical significance of the results. Therefore, the small sample size of these countries is probably the main reason for the lack of precision in the estimated coefficients. Second, our research also face the limitations inherent to cross-country studies. Third, our results do not necessarily generalize to all emerging markets, which can be studied in future researches. Fourth, to overcome self-selection bias, we applied a Heckman two-stage approach. However, the Heckman model does not eliminate the selection biases, in a manner that, the literature raises concern that unobservable firm or auditor characteristics may drive firms' auditor choice. Thus, selection bias cannot be entirely ruled out as an alternative explanation for our results.

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Table 2. Fixed Effects Regression

Variables	Latin American Firms			Argentina			Brazil		
	Full Sample	Big 4	Non-Big 4	Full Sample	Big 4	Non-Big 4	Full Sample	Big 4	Non-Big 4
Constant	0.784 (***)	0.787 (***)	0.555 (***)	0.639 (***)	0.625 (***)	0.576 (***)	0.863 (***)	0.883 (***)	0.581 (***)
$E_{i,t}$	2.230 (***)	2.868 (***)	0.896 (**)	0.283	0.382	0.363	1.344 (***)	1.500 (***)	0.896
$dE_{i,t}$	-0.620 (***)	-0.908 (***)	-0.416 (**)	-1.025 (**)	-1.161 (*)	-0.890 (*)	0.057	-0.151	-0.158 (*)
$dE_{i,t+1}$	0.467 (***)	0.558 (***)	0.211	-0.502	-0.337	-0.460	0.442 (**)	0.427	0.333
$dNa_{i,t}$	-0.001	0.037	0.008	-0.198 (*)	-0.266	0.001	0.189 (***)	0.265 (***)	0.073
$dNa_{i,t+1}$	0.030	0.031	0.016	0.075	0.042	0.120	0.009	0.022	-0.029
$Growth\ Opportunities_{i,t}$	0.083 (***)	0.102 (**)	0.045	0.122	0.175	-0.024	0.094 (***)	0.110 (**)	0.074
$I_{i,t}$	-1.169	-1.065	0.928	4.546 (***)	4.845 (***)	6.614 (**)	-1.308 (*)	-0.935	0.319
$dI_{i,t}$	0.493	0.436	0.222	-2.465 (**)	-2.711 (*)	-2.648	0.48	0.163	0.418
$dI_{i,t+1}$	0.000	0.090	0.226	1.628	2.704 (*)	1.639	-0.105	-0.332	0.395
$D_{i,t}$	0.003 (***)	0.003 (***)	0.003	0.001	0.001	-0.001	6.218 (***)	7.407 (***)	0.879
$dD_{i,t}$	-0.001 (***)	-0.001 (***)	-0.001	0.000	-0.000	0.000	-2.206 (***)	-2.521 (***)	-0.983
$dD_{i,t+1}$	0.000	0.000	0.002	0.002 (*)	0.003 (*)	-0.001	1.235 (*)	1.719 (**)	0.206
$dV_{i,t+1}$	0.405 (***)	0.383 (***)	0.449 (***)	0.662 (***)	0.604 (***)	0.68	-57604.9 (***)	-90777.3 (***)	-26526.6 (***)
$dCash_{i,t}$	0.020	-0.030	0.264	0.237	-0.629	0.608 (***)	0.235 (**)	0.248	0.370 (*)
$dCash_{i,t+1}$	-0.410 (***)	-0.490 (***)	-0.127	0.186	0.167	0.312	-0.156	-0.184	-0.049
GDP	0.015 (***)	0.017 (***)	0.009 (**)	-	-	-	-	-	-
Adjusted R ²	21.65	23.95	18.21%	43.15	40.32%	51.96%	30.80	35.89%	21.14%
P-Value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Highest VIF	1.786	1.908	1.786	2.118	2.081	2.389	2.493	2.833	1.947
Observations	4026	3236	790	361	227	134	2019	1554	465

Continued Table 2. Fixed Effects Regression

Variables	Chile		Colombia		México			Peru	
	Full Sample	Big 4	Full Sample	Full Sample	Big 4	Non-Big 4	Full Sample	Big 4	
	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	
Constant	0.582 (***)	0.605 (***)	0.648 (***)	0.608 (***)	0.606 (***)	0.464 (***)	0.401 (***)	0.448 (***)	
$E_{i,t}$	0.759	0.804	3.643 (***)	5.146 (***)	5.356 (***)	4.603 (**)	0.954	0.178	
$dE_{i,t}$	-0.429	-0.266	-2.605 (**)	-2.378 (***)	-2.179 (**)	-3.050 (**)	-0.247	-0.039	
$dE_{i,t+1}$	-0.094	0.004	0.147	1.088 (**)	1.060 (*)	0.803 (*)	0.293	-0.022	
$dNa_{i,t}$	-0.069	-0.025	-0.114	-0.327 (***)	-0.308 (**)	-0.022	0.146	0.105	
$dNa_{i,t+1}$	0.207	0.278 (**)	-0.056	-0.145	-0.120	-0.263 (*)	0.122	0.169	
<i>Growth Opportunities</i> $_{i,t}$	0.153 (*)	0.137	-0.273 (*)	-0.098	-0.088	-0.057	0.063	0.111	
$I_{i,t}$	5.807	5.232	-17.736 (***)	-0.771	-0.915	1.339	8.975 (**)	11.957 (***)	
$dI_{i,t}$	-2.152	-1.232	12.889 (***)	1.661	1.741	-2.075	-2.860	-5.059 (**)	
$dI_{i,t+1}$	-0.680	-0.169	-1.411	-0.512	-0.719	0.577	2.529	3.715	
$D_{i,t}$	0.004 (***)	0.004 (***)	0.009	0.005 (***)	0.005 (**)	0.002	0.004 (***)	0.003 (***)	
$dD_{i,t}$	-0.001	-0.002 (*)	-0.000	-0.001 (**)	-0.001 (**)	0.000	-0.000	-0.000	
$dD_{i,t+1}$	0.000	1.807	0.008	0.001	0.000	0.003	0.002 (**)	0.001 (*)	
$dV_{i,t+1}$	0.439 (***)	0.435 (***)	0.558 (**)	0.459 (***)	0.452 (***)	0.337 (**)	0.379 (***)	0.443 (***)	
$dCash_{i,t}$	-0.538	-0.493	-1.690 (*)	-0.971 (***)	-0.940 (***)	-1.051	0.346	0.598 (*)	
$dCash_{i,t+1}$	-0.133	-0.137	-1.233	-0.898 (***)	-0.828 (**)	-0.802	0.027	0.345	
GDP	-	-	-	-	-	-	-	-	
Adjusted R ²	39.67%	41.10%	82.29	36.82	37.42%	44.42%	40.88%	46.00%	
P-Value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Highest VIF	2.741	2.739	6.068	2.372	2.465	2.319	3.471	3.669	
Observations	442	400	80	764	687	77	360	308	

Notes: The dependent variable is the market value of firm (Market-to-Book), which is calculated at fiscal year-end as the sum of the market value of equity and the book values of short-term and long-term debt divided by the book value of assets; E is earnings before extraordinary (after depreciation and taxes); NA is net assets, that is, total assets minus cash and cash equivalents; $Cash$ is the sum of cash and cash equivalents; *Growth Opportunities* is the yearly growth rate of a firm's sales; I is interest expense; D is total dividends paid. dX_t is the change in the level of X from year $t - 1$ to year t scaled by total assets in year t , that is, $((X_t - X_{t-1}) / Total Assets_t)$; dX_{t+1} is the change in the level of X from year $t + 1$ to year t scaled by assets in year t , that is, $((X_{t+1} - X_t) / Total Assets_t)$; All variables used, except Growth Opportunities, were scaled by total assets. Figures in parentheses are the p -values. * statistically significant at 10%; ** statistically significant at 5%; *** statistically significant at 1%.