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THREE ESSAYS ON CASH HOLDINGS AND CORPORATE GOVERNANCE

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THREE ESSAYS ON CASH HOLDINGS AND CORPORATE GOVERNANCE

Tese apresentada ao Programa de Pós-Graduação em Controladoria e Contabilidade da Faculdade de Economia, Administração e Contabilidade de Ribeirão Preto da Universidade de São Paulo, para a obtenção do Título de Doutor em Ciências. A versão original está disponível na FEA-RP/USP.

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“When the ears of the student are ready to hear, then cometh the lips to fill them with wisdom.” - The Kybalion

MANOEL, A. A. S. (2020). **Três ensaios sobre o gerenciamento do caixa e governança corporativa**. Tese (Doutorado) - Faculdade de Economia, Administração e Contabilidade de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto, 2020.

RESUMO

Esta tese é constituída por três artigos. No primeiro artigo, analisou-se se a iniciativa de uma bolsa de valores doméstica que criou três listagens de alta governança corporativa de adoção voluntária, além de manter sua listagem tradicional, pode atenuar a capacidade dos gestores de expropriar as reservas de caixa. Como consequência da redução do desvio de caixa em empresas com mecanismos de governança mais fortes, a hipótese de pesquisa é de que os acionistas atribuam um valor mais alto ao caixa das empresas que voluntariamente migrem para a listagem premium. Reformas da legislação societária projetadas para proteger os acionistas minoritários enfrentavam séria oposição política no Brasil. A criação da listagem especial (Nível I, Nível II e Novo Mercado), como um acordo contratual privado, oferece um cenário único para analisar se esses mecanismos podem atenuar a capacidade dos gestores de expropriarem o saldo de caixa às custas do principal. O valor de mercado do caixa é, em última análise, determinado pela forma como os investidores esperam que este recurso seja utilizado. Consistente com a hipótese de pesquisa, verificou-se que os acionistas atribuem um valor mais alto ao caixa nas empresas da listagem premium de governança corporativa em relação às empresas da listagem não premium, *ceteris paribus*. Em suma, essas descobertas são consistentes com a teoria da agência e sugerem que, quando os problemas de agência esperados são maiores, os acionistas identificam os possíveis benefícios privados associados ao caixa e, assim, descontam seu valor. Além disso, as análises demonstram que os investidores valorizam mais o caixa das empresas do segmento de listagem premium (Novo Mercado) com os mais altos padrões, onde as empresas seguem o princípio de “uma ação, um voto”. Esse resultado sugere que o mercado antecipa que os ativos líquidos têm maior probabilidade de uso indevido em empresas de classe dupla e, consequentemente, atribuem um valor menor ao caixa nessas empresas em comparação com empresas de classe única.

No segundo artigo, analisou-se se a qualidade da auditoria, capturada se uma empresa foi auditada por uma Big 4 (Deloitte, Ernst & Young, KPMG, e PricewaterhouseCoopers), afeta o valor que os investidores atribuem às reservas de caixa na América Latina. A literatura sugere que um auditor da Big 4 está associado a uma melhor qualidade dos relatórios financeiros e a demonstrações financeiras mais credíveis que reduzem a assimetria de informação e os problemas das agências. Assim, ao contratar um auditor Big 4, uma empresa está sinalizando ao mercado que as suas demonstrações contábeis são de alta qualidade, o que limita a capacidade dos gerentes de desapropriar o caixa às custas dos acionistas. Nesse sentido, a hipótese de pesquisa deste artigo é que o mercado desconte mais o dinheiro dos clientes não Big 4 em relação aos clientes Big 4, tudo o resto igual. Os resultados obtidos, por outro lado, não apoiam a existência de um prêmio Big 4 em relação ao valor que os acionistas atribuem a um dólar em caixa, rejeitando a hipótese da pesquisa. Além disso, também verificou-se que o valor de mercado do caixa na América Latina é, em média, quase zero e, em alguns países, até negativo. Os investidores não esperam receber todos os benefícios das reservas de caixa em um ambiente em que seus interesses estejam mal protegidos. Consequentemente, antecipando que as reservas de caixa são mais propensas a serem desperdiçadas em países

com baixa proteção aos investidores, então os acionistas descontam substancialmente o valor do caixa nas empresas latino-americanas.

O objetivo do último artigo é lançar luz no papel do conservadorismo contábil na determinação dos níveis de caixa. A literatura sugere que o conservadorismo é um mecanismo de governança que pode aliviar parte dos problemas da agência associados às decisões de investimento dos gestores. Assim, a hipótese de pesquisa é que um maior nível de conservadorismo contábil limita a capacidade dos gestores de abusar do caixa de uma empresa objetivando os seus objetivos privados. Para testar esta hipótese, aproveitou-se do cenário latino-americano. As análises indicam que um maior conservadorismo tem o potencial de trazer benefícios econômicos reais para as organizações, servindo como um mecanismo eficiente que reduz os custos de agência sobre o gerenciamento de caixa, induzindo um uso mais eficiente dos recursos em dinheiro, todos iguais. As análises indicam que um maior conservadorismo tem o potencial de trazer benefícios econômicos reais para as organizações, servindo como um mecanismo eficiente que reduz os custos de agência sobre o gerenciamento de caixa, induzindo um uso mais eficiente dos recursos em dinheiro, todos os demais fatores iguais. Portanto, os resultados obtidos são consistentes com a hipótese, sugerindo que as empresas sob contabilidade mais conservadora têm níveis mais altos de caixa como resultado da redução na apropriação indevida deste ativo.

Palavras-chave: Reservas de caixa; Governança corporativa; Qualidade de auditoria; Conservadorismo Contábil; Mercados emergentes.

MANOEL, A. A. S. (2020). **Three essays on cash holdings and corporate governance**. Tese (Doutorado) - Faculdade de Economia, Administração e Contabilidade de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto, 2020.

ABSTRACT

This thesis consists of three articles. In the first article, we analyze if the initiative of a domestic stock exchange that designed three high-governance listings of voluntary adoption, in addition to maintaining its traditional listing, can mitigate managers' ability to expropriate cash holdings. As a consequence of the reduction in cash improper diversion in firms with stronger governance mechanisms, we hypothesize that shareholders place a higher value to cash in firms that voluntarily commit to the premium listing. Reforms of corporate law designed to protect minority shareholders face serious political opposition in Brazil. The creation of the special listing (Level I, Level II and New Market), as a private contractual arrangement, offers a unique setting to analyze if these mechanisms can mitigate managers ability to expropriate cash holdings at the expense of principal. The market value of cash is ultimately determined by how investors expect cash to be used. Consistent with our hypothesis, we find that shareholders assigns a higher value to cash in firms from the premium listing of corporate governance relative to corporations from the non-premium listing, *ceteris paribus*. In sum, these findings are consistent with agency theory and suggest that when expected agency problems are larger, shareholders identify the potential private benefits attached to cash and, thereby, discount their value. Furthermore, the analyzes show that investors place a higher value to cash in firms from the segment of the premium listing (New Market) with the highest standards, where companies follow the “one share, one vote” principle. This result suggest that the market anticipate that liquid assets are more likely to be misuse at dual-class firms and, consequently, place a lower value on cash in these firms in comparison to single-class companies.

In the second article we analyze whether audit quality, captured by the well-known Big 4/non-Big 4 dichotomy, impacts the value that investors place on cash holdings in Latin America. Previous literature suggest that a Big 4 auditor are associated with improved financial reporting quality and more credible financial statements that reduces information asymmetry and agency problems. Thus, by hiring a Big 4 auditor a company is signaling to the market that financial statements are of high quality, which limits managers' ability to expropriate cash holdings at the expense of shareholders. In this sense, we hypothesize in this research that the market discount more the cash of non-Big 4 clients relative to Big 4 clients, everything else equal. Our results, on the other hand, do not support the existence of a Big 4 premium relative to the value that shareholders assigns to a dollar of cash, thereby rejecting the research hypothesis. Moreover, we also find that the market value of cash in Latin America is, on average, almost zero and in some countries even negative. Investors do not expect to receive the full benefits of cash holdings in an environment where their interests are poorly protected. Consequently, anticipating that cash are more likely to be misspent in countries with poor investor protection, then shareholders substantially discount the value of cash in Latin American companies.

The aim of the last article is to shed light on the role of accounting conservatism in the determination of cash levels. The literature suggest that conservatism is a governance mechanism that can alleviate part of the agency problems associated with

managers' investment decisions. Thus, we hypothesize that greater conservatism limits managers' ability for abusing cash for their private benefits. To test this hypothesis, we use the Latin American setting. The analyzes indicate that greater conservatism has the potential to bring real economic benefits to organizations, serving as an efficient mechanism that reduce agency costs over cash management by inducing a more efficient use of cash holdings, all else equal. Therefore, we find results consistent with our predictions, suggesting that firms under more conservative accounting have higher cash levels as a result of the reduction in cash misappropriation.

Keywords: Cash Holdings; Corporate Governance; Audit Quality; Accounting Conservatism; Emerging Markets.

LIST OF TABLES

Article 1: Can a stock exchange improve the value that investors attribute to cash? Evidence from the creation of a high-governance listings of voluntary adoption

Table 1. 1. Descriptive Statistics	45
Table 1. 2. Fixed Effects Regression	46
Table 1. 3. Fixed Effects Regression	47
Table 1. 4. Fixed Effects Regression	48
Table 1. 5. Fixed Effects Regression	49
Table 1. 6. Fixed Effects Regression	50
Table 1. 7. Heckman's (1979) two-stage procedure with corrected standard errors	51

Article 2: Audit quality and the market value of cash: the role-played by the Big 4 auditor in Latin America

Table 2. 1. Descriptive Statistics	77
Table 2. 2. Fixed Effects Regression	78
Table 2. 3. Fixed Effects Regression	80
Table 2. 4. Fixed Effects Regression	82
Table 2. 5. Heckman's (1979) two-step selection model	83

Article 3: Accounting Conservatism and Corporate Cash Levels: empirical evidence from Latin America

Table 3. 1. Descriptive Statistics	105
Table 3. 2. OLS estimates of Models 2 and 4	106
Table 3. 3. OLS estimates of Models 2 and 4	107
Table 3. 4. OLS estimates of Models 2 and 4	108
Table 3. 5. OLS estimates of Models 2 and 4 with three additional control variables (size, leverage and growth opportunities)	109
Table 3. 6. OLS estimations of the effect of corporate governance on the association between accounting conservatism and cash holdings	110

LIST OF APPENDICES

**Article 1: Can a stock exchange improve the value that investors attribute to cash?
Evidence from the creation of a high-governance listings of voluntary adoption**

**Appendix 1. Requirements for Corporate Governance Level 1, Level 2 and New
Market. 52**

Summary

INTRODUCTION	15
REFERENCES	19
Can a stock exchange improve the value that investors attribute to cash? Evidence from the creation of a high-governance listings of voluntary adoption	21
1. INTRODUCTION	22
2. HYPOTHESIS DEVELOPMENT	25
2.1. Market Value of Cash	25
2.2. The Brazilian Market	28
3. RESEARCH METHODOLOGY	30
3.1. The sample	30
3.2. The Model	31
3.3. Descriptive statistics	33
4. RESULTS	33
4.1. Main Results	33
4.2. Robustness tests	36
5. CONCLUDING REMARKS	40
REFERENCES	42
Audit quality and the market value of cash: the role-played by the Big 4 auditor in Latin America	53
1. INTRODUCTION	54
2. HYPOTHESIS DEVELOPMENT	57
3. RESEARCH METHODOLOGY	62
3.1. The sample	62
3.2. Market Value of Cash	62
3.3. Descriptive statistics	64
4. RESULTS	65
4.1. Main Results	65
4.2. Robustness checks	68
5. CONCLUDING REMARKS	70
REFERENCES	72
Accounting Conservatism and Corporate Cash Levels: empirical evidence from Latin America	85
1. INTRODUCTION	86
2. HYPOTHESIS DEVELOPMENT	89
3. RESEARCH METHODOLOGY	91

3.1. The sample	92
3.2. Measures of Accounting Conservatism.....	92
3.3. Descriptive statistics	95
4. RESULTS.....	96
4.1. Robustness checks.....	97
4.2. Controlling for corporate governance	99
5. CONCLUDING REMARKS.....	100
REFERENCES	102

INTRODUCTION

Ensure that a company has enough cash to finance its growth opportunities when they arise is one of the most important decision of managers (Almeida, Campello, Cunha, & Weisbach, 2014). If a firm do not have sufficient liquid assets to finance the optimal investment program, then managers may be forced up to forgo profitable projects (Drobetz, Grüninger, & Hirschvogl, 2010). Firms around the world hold large amounts of cash on their balance sheet and the value of cash represents a significant portion of all corporate wealth (Dittmar & Maht-Smith, 2007). Bates, Kahle and Stulz (2009), for example, document a dramatic upward-sloping trend in cash holdings of listed U.S. industrial firms from 10.5% in 1980 to 23.2% in 2006, which has attracted growing attention from academics and press.

In a world of perfect financial capital markets, the decision about the percentage of assets to be allocated in cash would not add any value to firms, since companies could obtain timely funds at a fair terms when necessary (Opler, Pinkowitz, Stulz, & Williamson, 1999; Drobetz et al., 2010). However, given that financial markets are imperfect and transaction costs are never irrelevant, then firms must manage their cash by trading off the marginal cost of holding liquid assets with low return and its benefit, such as minimization of transactions costs and take advantage of investment opportunities (Kim, Mauer, & Sherman, 1998). As a result, the way companies manage their cash needs to be better understood (Martínez-Sola, García-Teruel, & Martínez-Solano, 2013).

Companies hold cash mainly for four reasons. The first is the transactional, which refers to the idea that companies hold cash to meet the needs from normal activities (Keynes, 1936). The second reason is the precautionary motive, where firms hold cash to hedge for the risk of cash shortfalls (Keynes, 1936; Opler et al., 1999). The third one is called speculative motive. The speculative cash allows firms to take advantage of future growth opportunities that might otherwise be forgone due to costly external capital (Myers & Majluf, 1984; Kim et al., 1998). The fourth reason is related to repatriation tax incentives. Firms hold cash under a tax-based explanation to avoid the tax costs associated with repatriation of foreign earnings. U.S. multinational firms, for instance, hold substantial amounts of cash in their affiliates due to the tax costs associated with repatriation of the cash trapped overseas. The tax incentives of holding cash is especially relevant for the U.S. setting, given that United States use a system of worldwide taxation with deferral (Foley, Hartzell, Titman, & Twite, 2007).

In spite of the above-mentioned benefits, cash holdings also have large potential costs (Harford, 1999). First, investment in cash is costly because liquid assets earn a low rate of

return in comparison to other investments of the same risk (Kim et al., 1998; Dittmar, Mahrt-Smith, & Servaes, 2003). Second, when the interests of managers are not perfectly aligned with those of investors, that is, when agency costs exist, then managers will increase their welfare at the expense of minority shareholders. Cash is like free cash flow and can be considered the asset most likely to be expropriated by managers on perks or on negative net present value (NPV) projects. Hence, cash holdings may engender more agency problems relative to the other assets (Jensen & Meckling, 1976; Jensen, 1986; Myers & Rajan, 1998). Stated differently, it is easier to make cash disappear than to make fixed assets disappear (Myers & Rajan, 1998). Therefore, shareholders can limit managers' access to cash to mitigate agency concerns over its deployment (Jensen, 1986; Dittmar, Mahrt-Smith, & Servaes, 2003).

Furthermore, the free cash flow hypothesis contends that sizable cash holdings can be even more detrimental to shareholders (Jensen, 1986). Although it is good for firms to hold part of their assets in the form of cash and cash equivalents, holding excessive cash levels may have negative implications if managers use cash inefficiently (Dittmar & Mahrt-Smith, 2007). The findings of Harford (1999), for example, show that firms with excess cash are more likely to make acquisitions. These acquisitions, in turn, are value decreasing on average.

This negative effect of cash is especially relevant in firms with poor corporate governance, where controlling shareholders can extract substantial private benefits from cash resources (Dittmar & Mahrt-Smith, 2007). Governance mechanisms then arise to mitigate part of the value destruction associated with cash resources. According to Dittmar and Mahrt-Smith (2007), in firms with poor governance managers dissipate cash holdings more quickly in ways that destroy operating performance relative to managers from well-governance companies. It is important to mention, however, that governance has more impact on investment and operation decisions rather than on financial decisions related to cash (Dittmar & Mahrt-Smith, 2007).

The set of governance mechanisms improves the use of liquid assets by improving the returns from normal operations (Dittmar & Mahrt-Smith, 2007). In the absence of robust governance mechanisms to align the interests of managers with those of the shareholders, then the misallocation of liquidity by self-interested managers can be substantial (Myers & Rajan, 1998; Harford, 1999; Pinkowitz, Stulz, & Williamson, 2006; Graham & Leary, 2018). Aware of the vulnerability of liquidity, managers value cash based on how they expect cash to be used in an agency theory framework (Dittmar & Mahrt-Smith, 2007; Kalcheva & Lins, 2007).

The market value of cash and, thus firm value, is determined by how shareholders expect cash to be used under agency theory framework (Dittmar & Mahrt-Smith, 2007). Thus,

a dollar of cash may not worth a dollar if entrenched managers use cash to pursue his private benefits at the expense of shareholder wealth (Masulis, Wang & Xie, 2009). In this thesis, we study how governance mechanisms can mitigate managers' ability to convert cash into private benefits. Indeed, we posit that with more agency problems, shareholders discount the market value of cash more heavily (Dittmar & Mahrt-Smith, 2007; Huang, Elkinawy, & Jain, 2013). Moreover, we also expect that a well-governed company have higher cash holdings as a result of the reduction in cash improper diversion. Thus, in the first two articles of this thesis we focus on the value that shareholders attribute to a dollar of cash. In the third paper, on the other hand, the focus is on the strand of the empirical literature that examines the determinants of cash levels.

In the first article, we analyze if the initiative of a domestic stock exchange that designed three high-governance listings of voluntary adoption, in addition to maintaining its traditional listing, can mitigate insiders' ability to expropriate cash. In the early 2000s, the Brazilian Stock Exchange, now called "Brasil, Bolsa, Balcão" or B3, launched three high-governance listings. The three new premium listing of governance (Level I, Level II and New Market) are of voluntary adoption and firms that undertake to these levels are subject to governance practices and disclosure requirements, which go beyond the legal minimums required by the Brazilian laws. In this sense, the hypothesis of this article is that cash worth more in firms that voluntarily migrate to these levels, especially for those listed on the segment with the highest standards of governance (New Market), where firms can only issue shares with voting rights.

Consistent with the hypothesis, we find that the market place a higher value to cash in firms listed on the premium listing. The findings, therefore, suggest that investors view the premium listing as limiting the potential private benefits associated with cash resources. Furthermore, the analysis also reveals that the market value of cash is higher in firms from New Market. This last result is consistent with the argument that the market anticipate that cash holdings are more likely to be misappropriate when control rights and cash flow rights diverge, *ceteris paribus*. Overall, the results obtained in the first article show that weak corporate governance has a detrimental effects on the value of cash, which is consistent with the findings of Pinkowitz et al. (2006) and Dittmar and Marth-Smith (2007).

In the second article of this thesis, we analyze whether audit quality, captured by a Big 4 (Deloitte, Ernst & Young, KPMG, and PricewaterhouseCoopers) membership, impacts the value that investors place on cash holdings in Latin America. Auditing is an important corporate governance mechanism because stakeholders have a greater need for credible

financial statements. Agency problems are the main source of incentives for a company to demand high audit quality (Defond & Zhang, 2014). By hiring a high-quality auditor (Big 4), a corporation 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. To the extent that investors perceive a Big 4 auditor as providing a higher audit quality and more credible financial statements that effectively constraining cash misallocation, then we hypothesize that firms audited by a Big 4 receive a higher value to a dollar of cash, all else equal.

The obtained results, on the other hand, do not support the existence of a Big 4 premium relative to the value that shareholders assigns to a dollar of cash, thereby rejecting the research hypothesis. Finally, the results also suggest that the market value of cash in Latin American public companies is, on average, almost zero and in some countries even negative. These findings are consistent with the free cash flow hypothesis, suggesting that cash is worth less than one dollar in countries with poor investor protection because investors are concerned that self-interested managers will spend cash on wasteful projects. In sum, these evidence are consistent with the findings of Pinkowitz et al. (2006), indicating that cash are valued at a discount outside the United States.

The aim of the third article is to shed light on the role of accounting conservatism in the determination of cash levels. The literature suggest that accounting conservatism reduces *ex ante* the incentives of managers to take on negative NPV projects and also improve *ex post* monitoring of managers' investment decisions (Ball & Shivakumar, 2005). Therefore, conservatism is considered a governance mechanism that can alleviate agency problems associated with managers' investment decisions. Thus, the hypothesis of this article is that greater conservatism limits managers' ability for abusing cash for their private benefits. For that purpose, we enjoy of the Latin America setting. Consistent with the theoretical predictions, the results show that Latin American firms under more conservative accounting have higher cash level as a result of the reduction in cash misappropriation. Hence, the analysis reveals that greater conservatism has the potential to bring real economic benefits to organizations, serving as a governance mechanism that reduce agency costs over cash management by inducing a more efficient use of liquid assets.

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Can a stock exchange improve the value that investors attribute to cash? Evidence from the creation of a high-governance listings of voluntary adoption

Manuscript Type: Empirical

Research Question/Issues: This article is the first to analyze if the initiative of a domestic stock exchange that designed three high-governance listings of voluntary adoption, in addition to maintaining its traditional listing, can mitigate managers' ability to expropriate cash. As a result of the reduction in cash improper diversion in firms with stronger governance mechanisms, we hypothesize that investors place a higher value to cash in those firms that voluntarily migrate to the premium listing. Reforms of corporate law designed to protect investors face serious political opposition in Brazil. The creation of the special listing, as a private contractual arrangement, offers a unique setting to analyze if these mechanisms increase the value that shareholders place on a dollar of cash.

Research Findings/Insights: We demonstrate, after a series of robustness check and endogeneity control, that the decision to migrate to a non-mandatory premium listing of corporate governance (\$0.427) increases the value that investors place on liquidity relative to firms from the non-premium listing (\$0.174). Our findings also reveals that the market value of cash is higher in firms from the segment with the highest standards (\$0.547), where companies follow the “one share, one vote” principle.

Theoretical/Academic Implications: Our findings suggest that this initiative of a private stock exchange that permitted its listed companies to voluntarily commit to a premium listing with stricter governance standards provides credible mechanisms that mitigates the value destruction associated with cash. We also contribute to the literature by demonstrating that shareholders discount the market value of cash more heavily when control and cash flow rights diverge.

Practitioner/Policy Implications: Our results provide important policy implications by demonstrating that a domestic stock exchange, by creating a premium listing of voluntary adoption with stricter governance standards, can provide mechanism that prevent managers from destroying part of shareholders value. Hence, emerging countries where reforms of corporate law designed to protect investors face serious political opposition may also consider creating special listing like Brazil, as a private contractual arrangement, to increase the protection of shareholders.

Keywords: Cash holdings; Dual-class shares; Corporate governance; Agency theory.

JEL Classification: G31; G34; M40

1. INTRODUCTION

Cash holdings constitute a considerable portion of firm's total assets and have important implications on shareholders value and in several strategic decisions (Opler, Pinkowitz, Stulz, & Williamson, 1999; Faulkender & Wang, 2006; Dittmar & Mahrt-Smith, 2007; Pinkowitz & Williamson, 2007; Harford, Mansi, & Maxwell, 2008; Bates, Kahle, & Stulz, 2009; Masulis, Wang, & Xie, 2009; Martínez-Sola, García-Teruel, & Martínez-Solano, 2013). According to De Simone, Piotroski and Tomy (2018), U.S. nonfinancial firms amounted to \$1.7 trillion of cash at 2015, representing 9.5% of U.S. gross domestic product (GDP). The literature on cash management has recently attracted much attention from both academic and press, especially driven by the dramatic rise in cash trapped overseas by U.S. industrial firms due to repatriation tax law (Bates et al., 2009; Duchin, 2010; Harford, Wang, & Zhang, 2017; De Simone et al. 2018; Graham & Leary, 2018; Faulkender, Hankins, & Petersen, 2019).

In a world of perfect financial markets, an additional dollar of cash should increase the market value of a firm by one dollar. However, the assumptions of perfect capital markets can be considered as platonic abstractions (Manoel, Moraes, Nagano, & Sobreiro, 2018), since that transaction costs are never irrelevant and external capital cannot be considered an ideal substitute for internal funds (Myers, 1977; Myers & Majluf, 1984). Hence, considering that, firms operate in imperfect capital markets and that they cannot finance all their investments opportunities using external capital (Duchin, 2010; Martínez-Sola et al., 2013; Graham & Leary, 2018; Faulkender et al., 2019), then one dollar of cash may not be worth one dollar by investors.

Prior studies indicate that the value destruction associated with cash management can be mitigated by good governance (Pinkowitz, Stulz, & Williamson, 2006; Dittmar & Mahrt-Smith, 2007; Drobetz, Grüninger, & Hirschvogel, 2010). While there is some papers that analyze whether a U.S. cross-listing constrains the private benefits embodied in cash holdings (Frésard & Salva, 2010; Huang, Elkinawy, & Jain, 2013), this article is the first to analyze if the initiative of a domestic stock exchange that designed three high-governance listings of voluntary adoption, in addition to maintaining its traditional listing, can mitigate managers' ability to expropriate cash resources. According to De Carvalho and Pennacchi (2012), a less recognize alternative bonding mechanism may be available to a firm if its domestic stock exchange create separate levels of corporate governance to protect minority shareholders that exceed those already required by its country's laws.

In the early 2000s, Brazil was characterized by weak investor protection, low disclosure standards and the private benefits of control were pointed out as high and legal rules and firm-level governance as weak (Black, De Carvalho, & Gorga, 2012; De Carvalho & Pennacchi, 2012; Black, De Carvalho, & Sampaio, 2014). In response to the increase demand for superior shareholders protection and trading fragmentation in favor of the U.S. stock exchanges in the late 1990s, in 2000, São Paulo Stock Exchange (Bovespa), now called “Brasil, Bolsa, Balcão” or B3, launched three high-governance listings (Black et al., 2012; Bortolon & Leal, 2014; Manoel et al., 2018). The three new premium listings (Level I, Level II and New Market) are of voluntary adoption and firms that undertake to these levels are subject to “good corporate governance practices” and disclosure requirements, which go beyond the legal minimums required by the Brazilian laws (De Carvalho & Pennacchi, 2012; Bortolon & Leal, 2014).

The initiative of the Brazilian Stock Market provides a unique opportunity to analyze the effects of adopting higher corporate governance standards on the market value of cash and how it varies in comparison to those firms that did not migrate to the exchange's higher standards. Although it was not the first stock exchange to establish a premium listings, the Brazilian Market was the first to allow previously-listed companies to migrate optionally to higher listing levels with stricter governance standards than the regular listing (Black, De Carvalho, & Gorga, 2010; Black et al., 2012; De Carvalho & Pennacchi, 2012).

Furthermore, Brazil is one of the largest emerging market and is an interesting case to analyze because this country was characterized by weak standards of corporate governance in the early 2000 and also because Brazilian firms do not show an upward trend in cash reserves in recent years. Manoel and Moraes (2018), for example, find that cash and cash equivalents represented 8.17% of the sum of total assets for Brazilian non-financial firms in 2017. However, the share of cash balances relative to total assets in Brazilian non-financial companies has decreased over the last 10 years, since that in 2007, firms in Brazil held on average 18.42% of their assets in cash. Thus, in a context of limited access to external financing and unlike the other countries, especially driven by U.S. multinational firms, Brazilian companies did not show a tendency to increase their cash levels recently (Manoel & Moraes, 2018).

Therefore, in spite of these major changes in the Brazilian stock market, little is known if the creation of a voluntary premium listing with stricter governance standards can mitigate managers' ability to convert cash into private benefits and, consequently, if investors attribute a higher value to cash of firms that choose the improved standards. Our article fills this gap in

the empirical literature by providing a detailed analyzes on the interplay between agency theory and cash, and their combined effect on firm value.

If shareholders believe that firms that voluntarily adhere to these levels are subject to stricter governance standards than the regular listing and that these mechanisms shrinks the agency costs of free cash flow, then we hypothesize that a dollar of cash may be worth more for them. Alternatively, if shareholders believe that these corporate governance mechanism cannot reduce the agency problems of free cash flow, then a dollar of cash may not be worth more. We expect, *ceteris paribus*, that shareholders place a higher value on cash holdings in firms that voluntarily subscribe to these levels.

To test our hypothesis we adapted the model used by Pinkowitz et al. (2006) and Dittmar and Mahrt-Smith (2007), which was initially developed by Fama and French (1998). We employ a comprehensive sample of 197 Brazilian public firms (2,293 firm-year observations) with annual data available from 2000 to 2018. Our findings show, *ceteris paribus*, that cash is worth more in firms listed on the premium listing (\$0.427) and that investor discount the value of cash in firms from the traditional non-premium list. These results supports our hypothesis and the agency costs of free cash flow theory of Jensen's (1986), since that, shareholders place a higher value on cash reserves in well-governed companies. Built on these facts, our results provide important policy implications by demonstrating that a domestic stock exchange, by creating a premium listing of voluntary adoption with stricter governance standards, can provide mechanism that prevent managers from destroying part of shareholders value.

In addition, we also document that an extra dollar of cash for the whole sample of Brazilian firms has a marginal value of \$0.291 to shareholders, indicating that \$1.00 of cash worth less than one dollar in Brazil. Thus, we also contribute to the literature and extend the efforts of Pinkowitz et al. (2006), Kalcheva and Lins (2007) and Drobetz et al. (2010) by demonstrating that cash worth less than one dollar in Brazil, since investors do not expect to receive the full benefits of cash in a country with poor investor protection.

Therefore, our findings indicate that in an environment where minority shareholders are poorly protected, the initiative of a private stock exchange provides credible mechanisms that reduce agency costs associated with cash holdings. As a result, investors attribute a higher value to cash in firms that voluntarily adhere the exchange's higher standards. These findings, in turn, may be interesting for other emerging markets where reforms of corporate law designed to protect shareholders face serious political opposition. Hence, emerging countries may also

consider creating special listing like Brazil, as a private contractual arrangement, to increase the protection of minority shareholders.

Our analysis also reveals that the marginal value of one dollar of cash on balance sheet is higher in the segment of the premium listing with the highest standards of governance (New Market), where companies, among other things, must follow the “one share, one vote” principle. For these firms, an additional dollar of cash is worth \$0.547, which is significantly higher relative to the value that the market assigns to the other Brazilian companies. This result is consistent with the argument that the market anticipate that cash are more likely to be misspent when control rights and cash flow rights diverge (Masulis et al., 2009). Hence, we also contribute to the literature by showing that part of the valuation premium is due to the issuing of only shares with voting rights.

We conduct some robustness checks, especially addressing the potential endogeneity problems, and our main results and inferences are unchanged. The rest of this article is organized as follows. Section 2 is dedicated to the development of the research hypothesis. In Section 3 we describe the data and explain our empirical methodology. In Section 4 we report our empirical results, including a series of robustness checks. Finally, Section 5 is dedicated to the concluding remarks, limitations and suggestions for future articles.

2. HYPOTHESIS DEVELOPMENT

2.1. Market Value of Cash

If firms could finance all their investments opportunities using external capital, cash holdings would not add value to them (Modigliani & Miller, 1958). However, in a context of capital market imperfections, companies that have valuable growth opportunities invest less than the first-best optimum, which leads to underinvestment problems and reduced firm value (Denis & Sibilkov, 2010). Hence, considering that firms operate in a capital market that is far from perfect and that external finance cannot be considered as an ideal substitute for internal capital (Myers, 1977; Myers & Majluf, 1984), liquidity can take on a strategic role (Harford, 1999; Denis & Sibilkov, 2010; Drobetz et al., 2010; Duchin, 2010), including contributing to the increase of firm value (Dittmar & Mahrt-Smith, 2007; Masulis et al., 2009).

Cash reserves allow companies to take advantage of their valuable investment opportunities that would otherwise be forgone (Keynes, 1936; Myers & Majluf, 1984; Opler et al., 1999; Denis & Sibilkov, 2010; Martínez-Sola et al., 2013), especially when current cash

flows are not enough (Drobetz et al., 2010) and for firms that face greater financing constraints (Faulkender & Wang, 2006; Denis & Sibilkov, 2010; Manoel, Moraes, Santos, & Neves, 2017). Additionally, liquid assets enable companies to invest without raising external finance at high transaction costs (Kim, Mauer, & Sherman, 1998; Martínez-Sola et al., 2013) and liquidate assets to make payments (Opler et al., 1999). More broadly, cash balances also reduces underinvestment problems and the likelihood of incurring financial distress (Faulkender & Wang, 2006; Masulis et al., 2009; Frésard & Salva, 2010; Martínez-Sola et al., 2013).

While maintaining cash resources provides benefits in the presence of costlier external funds, holding liquid assets implies an opportunity costs due to the low return of these assets in comparison to other investments of the same risk (Kim et al., 1998; Huang et al., 2013; Martínez-Sola et al., 2013; Graham & Leary, 2018). In addition, although cash is a desirable asset, the literature suggests that there is reason for shareholders to be concerned about managers' stewardship of large cash reserves, given that the access to cash resources is with little scrutiny and its use is discretionary, which makes corporate liquidity the most vulnerable asset to opportunistic actions (Myers & Rajan, 1998; Dittmar & Mahrt-Smith, 2007; Harford et al., 2008).

Therefore, holding excessive cash may have negative implications if entrenched managers use these liquid assets in a way to benefit themselves at the expense of shareholders, such as, in the form of perquisites, empire building, and excessive compensation or even by theft (Jensen & Meckling, 1976; Myers & Rajan, 1998; Pinkowitz et al., 2006; Harford et al., 2008; Frésard & Salva, 2010). Aware of the vulnerability of corporate liquidity, cash holdings should be valued by equity market based on whether these resources prevents underinvestment in positive Net Present Value (NPV) investments by well-intentioned managers and whether cash facilitates overinvestment in negative NPV projects or in opportunistic actions by self-interested managers (Dittmar & Mahrt-Smith, 2007; Kalcheva & Lins, 2007).

These opportunistic behaviors can create a wedge between the value of a dollar inside the company and the value of a dollar paid out (Pinkowitz et al., 2006). In other words, shareholders will allow a firm to keep more cash if they believe that these resources will generate a higher return than if the cash were returned to them (Pinkowitz & Williamson, 2007).

Agency theory predicts that managers have strong incentive to hold more cash to gain discretionary power over the company's investment decisions, which in turn, can destroy shareholders value (Jensen & Meckling, 1976; Jensen, 1986; Dittmar & Mahrt-Smith, 2007; Frésard & Salva, 2010). The results of Harford (1999) corroborates with this argument, given

that, the author found that cash-rich firms engage in value-decreasing behavior. Further, Dittmar and Mahrt-Smith (2007) state that shareholders assign a lower value to an additional dollar of cash when agency conflicts are greater. Hence, an additional dollar of cash may not be worth a dollar to outside shareholders if managers use this resource inefficiently (Dittmar & Mahrt-Smith, 2007; Masulis et al., 2009).

The term “market value of cash” is used to describe the contribution of cash holdings to firm value (Weidemann, 2017). Cash reserves are often viewed by managers as at worst “value neutral” or zero net present value (NPV) investments. However, this is not the reality, given that in an imperfect capital market an additional \$1.00 of cash do not necessarily increase the market value of a company exactly by one dollar (Pinkowitz & Williamson, 2007).

In the presence of weak corporate governance, entrenched managers are able to use part of cash to pursue their own private objectives rather than maximize shareholders' wealth (Jensen & Meckling, 1976; Weidemann, 2017), resulting in faster dissipation of cash (Dittmar & Mahrt-Smith, 2007). Therefore, corporate liquidity can generate more agency problems when the set of governance mechanisms fail to align the agent's interests with those of the principal (Harford et al., 2008). Consequently, in the presence of agency costs of free cash flow, shareholders can limit managers' access to free cash flow (Jensen, 1986; Pinkowitz et al., 2006; Martínez-Sola et al., 2013) and the market value of cash is discounted given that part of these resources are spent to increase the welfare of agent instead to maximize the utility function of principal (Pinkowitz et al., 2006).

The market value of cash holdings, on the other hand, increases with the quality of the corporate governance mechanisms (Pinkowitz et al., 2006; Dittmar & Mahrt-Smith, 2007; Drobetz et al., 2010). Researches such as Dittmar and Mahrt-Smith (2007), Harford et al. (2008) and Manoel et al. (2018) provide empirical evidence that a robust set of governance mechanisms can reduce the risk of cash improper diversion.

Dittmar and Mahrt-Smith (2007) findings suggest that well-governed companies have their cash better “fenced in”, in a manner that, shareholders assign a higher value to an additional dollar of cash for a well-governed firm (between \$1.27 and \$1.62) in comparison to a poorly-governed company (between \$0.42 and \$0.88). The authors also provide evidence that corporate governance improves the use of corporate liquidity by improving the returns from normal operations. The findings of Harford et al. (2008) corroborate with those of Dittmar and Mahrt-Smith (2007), since they show that companies with weaker corporate governance, *proxied* by anti-takeover provisions, spend cash more quickly on inefficient acquisitions and capital expenditures than firms with strong governance.

In a more recent study, Drobetz et al. (2010) verified that the value of cash holdings is higher if governance and investor protection are better. Finally, Frésard and Salva (2010) find that shareholders place a higher value on excess cash of foreign firms cross-listed on U.S. exchanges (\$1.61) than their domestic counterparts (\$0.58). The authors attribute this result to the fact that a U.S. listing constrains managers' misallocation of cash, since that a U.S. cross-listing enhances corporate governance. Hence, their evidence also provides support to the hypothesis that shareholders place a higher value on an extra dollar of cash reserves in well-governed firms.

Taken together, the above evidence indicates that corporate governance is a tool that firms can use to mitigate part of the agency problems resulting from the misalignment of interest between agent and principal in cash management. However, it is important to mention that corporate governance has a relatively minor impact on how companies accumulate cash holdings, but a major impact on how firms spend their corporate liquidity. In other words, governance impacts more in operating and investments decisions than in financing decisions (Dittmar & Mahrt-Smith, 2007).

2.2. The Brazilian Market

The Brazilian market is a good place to analyze changes in corporate governance (Black et al., 2014). The debate on governance structures in Brazil was intensified only in the 1990s, when the entrance of new investors, especially international and institutional ones, stimulated new efforts to improve the governance structure of the Brazilian Market (Black et al., 2014; Bortolon & Leal, 2014). As in many countries, reforms of corporate law designed to protect investors face serious political opposition in Brazil (Chavez & Silva, 2009; De Carvalho & Pennacchi, 2012).

In a context of low investor protection and in an attempt to increase credibility and attract investors, the Brazilian Stock Market launched a three high-governance listings (New Market, Level I and Level II) in addition to allowing existing companies to retain the regular traditional listing in the early 2000s (Black et al., 2010; De Carvalho & Pennacchi, 2012). By voluntarily adhering one of the three high-governance levels, a company can pledge to better protect its shareholders. The premium listing can be chosen by a firm seeking a first-time following its Initial Public Offering (IPO) or by a company that wants to migrate from the Bovespa's traditional listing. In other words, firms can opt for these schemes anytime they wish (De Carvalho & Pennacchi, 2012).

The creation of the three high-governance listings¹, as a private contractual arrangement, offers a credible governance mechanism that companies can use to reduce their cost of funding growth opportunities (De Carvalho & Pennacchi, 2012). New Market is the level of the premium listing that has the highest standards. Firms that list on it must keep a minimum free float of 25% of their capital, financial statements prepared following U.S. GAAP (U.S. Generally Accepted Accounting Principles) or IFRS (International Financial Reporting Standards), adhere to the Market Arbitration Panel for conflict resolution and they cannot have Board of Directors elected for terms that exceed two years (De Carvalho & Pennacchi, 2012). In addition, New Market firms must follow the “one share, one vote” policy. However, almost 90% of the companies listed on the Brazilian stock exchange had non-voting shares at the time.

Recognizing that New Market’s standards may be very stringent for many Brazilian companies, B3 also created two additional segments, Level 1 and Level 2 (De Carvalho & Pennacchi, 2012). For those firms that do not commit to the “one share, one vote policy”, Level 2 was created with all New Market’s requirements, except that Level 2 allows non-voting shares. In Level 1 governance practices are less demanding than Level 2, with a focus on improving disclosure (Manoel et al., 2018). For example, Brazilian public firms are not required to disclose quarterly consolidated financial statements. Thus, when a firm that wants to migrate to Level 1 it must disclose quarterly consolidated financial statements (Black et al., 2010).

Prior to the creation of the special listing, most Brazilian public companies were dual-class companies, with controlling shareholders holding voting common shares and outside retaining non-voting preferred shares that have economic rights similar to common shares (Black et al., 2010). A dual-class ownership creates a wedge between cash flow (ownership) and voting (control) rights. Moreover, the Brazilian market is noted by a concentrated ownership structure, in which the most part of control is concentrated in the hands of a family or in a small group of shareholders. Thus, it was common that the largest shareholders of Brazilian firms to own a proportion of the non-voting shares larger than their voting shares percentage holding. This, in turn, results in a small group of people influencing in the most relevant decisions of a company in detriment of a large number of non-voting shareholders (De Carvalho & Pennacchi, 2012; Bortolon & Leal, 2014; Manoel et al., 2018).

¹ Chavez and Silva (2009, p. 36) provide a detailed table of the requirements for the three high-governance listings. The requirements of each level are reported in Appendix A.

Managers have incentives to extract private benefits of control when their proportion of voting shares is greater than their proportion of non-voting shares (Lins, 2003; Masulis et al., 2009; Bortolon & Leal, 2014), since that they are more likely to take decisions that would not be taken if they had a large fraction of the equity (Masulis et al., 2009). This divergence, what we call deviations from the “one share-one vote” principle, at dual class companies exacerbates the managerial agency problems between managers and investors (Lins, 2003; Masulis et al., 2009). In this sense, the results of Masulis et al. (2009) indicate that managers with excess control rights at dual-class firms take actions that somehow bring them benefits at the expense of shareholders.

The authors' evidence also indicates that as the insider control rights-cash flow rights divergence becomes larger an extra dollar of cash worth less and corporate managers engage in more inefficient empire-building activities (Masulis et al., 2009). Given that dual-class ownership structure are more susceptible to expropriation, we expect the market value of cash to be higher in firms from New Market where firms, in addition to meeting all the requirements for Levels 1 and 2, can only issue shares with voting rights. In companies not listed on New Market, on the other hand, we expect the market value of cash to be lower, given that part of this cash is more likely to be expropriated by manager at the expense of principal.

Based on these arguments, our hypothesis is:

***Ceteris paribus*, a dollar of cash is more valuable for shareholders in companies listed on the premium listing in the Brazilian Market, especially for those listed in the New Market, than for those that did not migrate to the exchange's higher standards.**

3. RESEARCH METHODOLOGY

3.1. The sample

Our initial sample is the set of all Brazilian public firms for which the required data items are available from 2000 to 2018. We initiated our period of analysis in 2000 because this was when the Brazilian Stock Market introduced the Premium Listing. We obtain our financial annual data from the Economática© database, the main database for Latin American countries. In addition, the information about the special governance segments, mentioning, from a possible entry, exit or change of firms between the levels (Level 1, Level 2 and New Market), from its creation until 2018 was provided by the Brazilian Stock Market. Based on information from June 2019, 140 companies were listed on New Market, 27 on Level 1 and 19 on Level 2.

From this sample, we exclude financial companies because liquidity is hard to assess in these firms and because their business involves inventories of marketable securities that are included in cash reserves (Opler et al. 1999). In the same way, we also delete utilities companies because liquidity and governance might be driven by regulatory factors and statutory capital requirements (Opler et al. 1999). We also eliminate firm-years (252 observations) that presented negative equity to avoid the effects that may be related to financial distress (Lins, 2003; Denis & Sibilkov, 2010; Manoel et al., 2017). Our final sample consist of an unbalanced panel comprising 197 Brazilian public firms (2,293 firm-year observations) with annual data available from 2000 to 2018.

3.2. The Model

To estimate the contribution of a firm's cash reserves to its market value we adapted the model used by Pinkowitz et al. (2006) and Dittmar and Mahrt-Smith (2007), which was initially developed by Fama and French (1998) to study the impact of debt and dividends on firm value. The model used by Pinkowitz et al. (2006) and Dittmar and Mahrt-Smith (2007) to estimate the marginal value of cash 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 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, $((X_{t+1} - X_t) / Total Assets_t)$; V 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; E is earnings before interest and extraordinary items (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; RD is research and development (R&D) expenditure; I is interest expense; D is total dividends paid. All variables used are scaled by total assets to control for heteroscedasticity (Pinkowitz et al., 2006).

This regression allow researchers to evaluate the impact of an increase in cash holdings that brings about an increase in total assets by the same amount (Pinkowitz et al., 2006). The coefficient on the change in cash balances (β_{16}) is the most important of this regression and

measures the sensitivity of firm value to a one-dollar increase in cash holdings. In other words, this coefficient is an estimate of the market value of a marginal dollar of cash balances. The control variables include in this regression are those that are likely to affect investors' expectations of future cash flows, which, in turn, determine the value of a company. The next period variable dX_{t+1} were included to absorb changes in expectation (Fama & French, 1998).

We opt to adapt the model because the authors used Research and Development (R&D) expenditure as a proxy for the construct investment opportunities. However, Brazilian companies do not provide information about R&D expenditure before 2007. Furthermore, firms that have valuable growth opportunities are more likely to migrate to the Brazilian's premium listing as a bonding mechanism that reduce their cost of funding (De Carvalho & Pennacchi, 2012). Hence, if we did not include a variable to control the effects of growth options on firm value, our estimates of the market value of cash could convey information about investments opportunities that are specific to firms from the premium listing. Thus, we opt to use the yearly growth rate of a firm's sales as an alternative proxy for investment opportunities². Despite this minor adjustment, sales growth is a proxy of investment opportunity widely used in the literature see, for example, the articles of Pinkowitz and Williamson (2007), Frésard and Salva (2010), Harford et al. (2017), Manoel et al. (2018) and Manoel and Moraes (2018).

In this sense, to test our hypothesis we estimate the regression model given by Equation 2:

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

All variables in this equation, except Growth Opportunities, are scaled by total assets and follows the operational definition used by Pinkowitz et al. (2006). The test of our hypothesis is that the coefficient (β_{14}) is larger for firms that voluntarily commit to the premium listing, especially for those listed in the New Market. This coefficient is an estimate of the market value of an additional dollar of cash. We used the Fixed Effects Model to mitigate part of the potential problems of correlated omitted variables and to focus on the within-dimension of the data (Drobtz et al., 2010). Finally, to ensure that the extreme values are not driving our

² Other possible proxies to be used would be Tobin's Q and the market to book ratio. However, we used both as our dependent variable. Moreover, in a further robustness check, we demonstrate that our main results are robust when we do not include a proxy for growth opportunities.

results, we winsorized all the continuous variables at the 1% tails (Dittmar & Mahrt-Smith, 2007).

3.3. Descriptive statistics

In sequence, Table 1 presents the descriptive statistics for the variables used in our article.

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INSERT TABLE 1 HERE

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This table reveals a wide variation in cash balances, with a mean ratio of cash to total assets of 9.64% and a median of 6.19%, with a standard deviation of 0.108 for the whole sample used. The average firm value is 1.006 and the average yearly change in cash holdings is -0.001. Moreover, unreported results also show that firms from Level 2 maintain the higher cash levels with a mean of 11.50%, while companies from New Market (9.40%) keep the lowest cash levels. Finally, the mean of cash and cash equivalents to total assets is similar in firms from the special governance segments (9.77%) in comparison to those that did not choose the improved standards (9.49%).

4. RESULTS

4.1. Main Results

Table 2 reports the results of estimating Equation 2 with Fixed Effects, which test our hypothesis. Despite the theoretical reasons for the use of the Fixed Effect model, unreported results of the Breusch-Pagan, Hausman and Welch tests also indicated that Fixed Effects regressions is the most appropriate for our data. Table 2 also presents the results of the Variance Inflation Factor (VIF) test. As observed, multicollinearity is not a concern in our study, since that the highest VIF found was 3.936 for the subsample of firms from Level 2. In column (1) we first present the results for the whole sample of Brazilian companies. Then, in the other columns we demonstrate the results by dividing the sample according to each level.

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INSERT TABLE 2 HERE

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The estimated coefficient (β_{14}) of column 1 is statistically significant at the level of 1% and can be interpreted as the market value of cash. We observe in this column that \$1.00 of cash is valued at only \$0.291 cents. This result indicates that the market value of an extra dollar of cash in Brazil is, on average, below one. The comparable coefficient in Drobetz et al. (2010) is 0.661 for a large international sample. Complementary to this observation, Pinkowitz and Williamson (2007), point out that the market value of the marginal dollar of cash is approximately one dollar (\$1.04) for a U.S. sample. In sum, this initial result is consistent with the findings of Pinkowitz et al. (2006), who show that cash worth less in countries with a low level of financial development due to the poor investor protection.

Considering the results of columns 2 and 3, we verified that cash contributes more to firm value in firms that voluntarily adhere to the special listing in comparison to those that did not migrate to the exchange's higher standards³. A one-dollar increase in cash reserves, as observed in (β_{14}) of column 2, is associated with an increase in the market value of \$0.427 in firms with stronger corporate governance, while the coefficient (β_{14}) of column 3 is \$0.174, although not statistically significant. Consistent with our findings, Dittmar and Mahrt-Smith (2007) show that shareholders assign a higher value to cash for a well-governed firm (between \$1.27 and \$1.62) than for a poorly-governed company (between \$0.42 and \$0.88) in a sample of U.S. public firms.

Investors tend to discount the market value of cash when insiders are expected to expropriate this resource at the expense of minority shareholders. In line with agency theory, we find that the marginal value of cash is higher in firms that voluntarily migrate to the premium listing. At poorly governed firms, managers are better able to extract private benefits and aware of the possible misuse of cash reserves in these firms, the market discounts their value. Investors seem to associate companies that chose to migrate to one of Bovespa's premium listings as a commitment that shrinks the risk of cash improper diversion. As a consequence, the stock market discounts less their liquid assets. These findings support our hypothesis and the evidences of Dittmar and Mahrt-Smith (2007) and Drobetz et al. (2010) that shareholders place a higher value on cash in well-governed companies.

Our findings also complement the study of Chavez and Silva (2009). The author's empirical research suggests that the special governance segments in Brazil provide concrete, standardized measures of commitment to higher governance practices. Consistent with their

³ To test the equality of regression parameters across the groups we apply the Chow-test, as reported in each table. The results of the χ^2 -test statistic indicates that all the coefficients vary significantly in the compared subsamples of this research.

results, we show that the stock market value cash more highly in firms that voluntary adhere to the premium listing, where cash are less likely to be misappropriated.

In columns 4, 5 and 6 of Table 2, Equation 2 was estimated independently for each subsample of firms from the premium listing (Level 1, Level 2, and New Market), respectively. When we divide our sample according to each level, we see that cash is more valued in firms from New Market (\$0.547). Among firms from Level 1 and Level 2, we observed that none of the coefficient (β_{14}) was statistically significant. The main reason for the lack of statistical significance in the estimated coefficients for the firms from these levels are probably the small number of firm-year observations of them.

The market value of cash is determined, at least in part, by how shareholders expect this asset to be used (Dittmar & Mahrt-Smith, 2007; Kalcheva & Lins, 2007). In dual-class companies, controlling shareholders can take central decisions that are not always consistent with the interests of non-controlling shareholders (Masulis et al., 2009). Therefore, controlling shareholders can take advantage of their privileged situation to take decisions that somehow maximize his or her private wealth at the expense of non-controlling shareholders (Manoel et al., 2018).

Consistent with this argument, we find that the market value of an additional dollar in cash is higher in firms from New Market, the segment that has the highest standards of corporate governance, in comparison to the others Brazilian nonfinancial firms. The results supports our research hypothesis that cash is more valuable in firms that only issue shares with voting rights. Investors seems to perceive the “one share, one vote” principle as a way to control the opportunistic behavior of agent in cash management. Thus, New Market represent an opportunity for firms to signal their commitment to higher governance practices, in a manner that, investor assigns a higher value to an extra dollar of cash for them. In summary, the increase in the value that the market attaches to a firm’s cash holdings in this country depends on the degree of improvement in investor protection.

Our empirical evidence is in line with the theoretical arguments and complements the findings of Masulis et al. (2009) that an additional \$1.00 of cash is less valuable at dual-class companies. In dual-class companies, controlling shareholders are able to escape the consequences of their decisions, while they benefits of the decision rights due to divergence between voting and cash flow rights. Hence, investors anticipate that cash are more likely to be misuse at dual-class firms and, consequently, place a lower value on each additional dollar of cash in these firms. Thus, our article also complement the literature, see for example Lins

(2003), that state that the stock market discount firm value at dual-class companies in comparison to single-class ones.

Regarding the control variables, the results of them are generally in line with the evidences found in Pinkowitz et al. (2006). In particular, we mentioned that the proxy for investment opportunities construct used showed a positive and significant sign in most specifications. This implies that firms with higher investment opportunities, on average, present a higher value on the market. Moreover, we find a significantly positive coefficient between total dividends (β_{10}) and market value in all specifications. As previously pointed out by Pinkowitz et al. (2006), no private benefits can be consumed from a dollar paid out. Therefore, in a context of poor investor protection, shareholders value dividends at a premium in Brazil

In sum, our results show that regardless of the listing, whether premium or traditional one, the market value of cash in Brazil is less than one dollar. As mentioned earlier, the market value of cash is determined by how shareholders expect liquidity to be used in an agency theory framework. Therefore, despite all the efforts to create the premium listing, investors attributes a lower value to an additional dollar of cash in Brazil, since they expect cash to be wasted on low-return projects or on pet projects (empire building).

These results support the findings of Pinkowitz et al. (2006), Kalcheva and Lins (2007) and Drobetz et al. (2010) that cash is worth less in countries with weak investor protection. A source of loss in cash resources, according to Pinkowitz et al. (2006), is that the market do not receive the full benefits of cash owned by firms located in these countries. As a result, investors discount the value of cash when agency costs are significant because of the ability of controlling shareholders to extract private benefits embodied in cash reserves.

4.2. Robustness tests

In this subsection, we undertake some robustness tests to provide additional evidence in support of our empirical results. As the first robustness test, we re-estimate our initial model, but changing the dependent variable (Market-to-Book) to Tobin's Q. Tobin's Q is a common proxy for firm value and was measured as the ratio of the firm's market value to total assets (Kalcheva & Lins, 2007; Martínez-Sola et al., 2013). The findings in Table 3 thus indicate that the main results are robust to the use of an alternative proxy for firm value.

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As in many countries, Brazilian companies do not report R&D in their financial statements. Thus, we adapted the model used by Pinkowitz et al. (2006) by including the yearly growth rate of a firm's sales as an alternative proxy for investment opportunities to capture the effects of growth options on firm value. Thus, in a second robustness test, we rerun our initial model without including a proxy for this construct in our valuation regression. Consistent with our earlier findings, Table 4 show that our evidences remain unaffected without the inclusion of a proxy for investment opportunities. This implies that our results are not affected by uncaptured growth options.

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Furthermore, cross-listing on U.S. exchange is also another way for a firm to signal its commitment to higher corporate governance practices. Frésard and Salva (2010) document that investors place a higher value on excess cash of foreign firms cross-listed on U.S. (\$1.61) than their domestic peers (\$0.58). Additionally, Huang et al. (2013) show that ADR (American Depository Receipt) firms maintain higher cash levels relative to their non-cross-listed counterparts. Both studies attribute these findings to the fact that a U.S. cross-listing enhances corporate governance and disclosure requirements, and also reduces agency costs. These occur because firms that cross list its shares on U.S. are subjected to U.S. Securities and Exchange Commission (SEC) requirements. These facts, taken together, also suggest that a firm can adopt higher standards of governance to limit expropriation via cross-listing its shares on U.S. exchange.

In a context of low investor protection, several Brazilian companies started to issue ADR (American Depository Receipt) with much more demanding requirements than the Brazilian traditional listing in the late 1990s (Bortolon & Leal, 2014). Cross-listing on U.S. exchange may substitute or complement the benefits associated with migrating to the premium listing as a bonding mechanism (De Carvalho & Pennacchi, 2012). Therefore, our initial results could be affected if a company had previously cross-listed its shares on U.S. market before migrating to the premium level. U.S. Thus, as an additional check, we re-run our initial model after excluding Brazilian companies that cross-list its shares on U.S. (265 observations). We obtain the data about ADR from the J.P. Morgan website. Again, Table 5 report results without ADR firms that provides support for our research hypothesis.

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Lastly, we used a subsample of Brazilian companies that cross list its shares on U.S. exchanges with data available to verify whether cash are valued more for them. Given the aforementioned evidences about the effects of bonding on mitigating part of the agency problems in cash management, especially for firms from emerging markets (Frésard & Salva, 2010; Huang et al., 2013), we expect cash to be more valued in Brazilian firms that cross list its shares on U.S. exchanges at any level. The results of the regression are presented in Table 6.

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The statistically significant and positive coefficient (β_{14}) of 0.521 suggests that the reduction of agency costs and the improvement in investor protection associated with cross-listing on U.S. market result in a higher valuation of cash. Thus, consistent with Frésard and Salva (2010), we also find that the value investors attribute to cash is higher in companies that cross list its shares on U.S. exchanges (\$0.521) than to the other Brazilian public companies, indicating that U.S. cross-listings shrinks the potential private benefits related to cash management.

These new findings, however, indicate that investors attribute a slightly higher value to an extra dollar of cash for firms listed on New Market (\$0.547) than to those Brazilian companies that cross list its shares on U.S. exchanges. The results of the Chow-test ($\chi^2=12.14^{***}$) supports this interpretation. Furthermore, it is relevant to mention that there is no incremental costs when a company migrates to the premium listing from the traditional one, while there are direct costs of establishing a cross-listing on U.S. exchanges.

In this sense, our article provide evidence that shareholders believe that the segment of the premium listing with the highest standards of governance offers, at least, similar degree of investor protection against cash misappropriation as cross-listing in U.S. market. Firms from this segment, in addition to meeting all the requirements Levels 1 and 2, can only issue shares with voting rights. Therefore, we attribute part of the valuation premium to firms from New Market to the “one share, one vote” principle, in a manner that, investors do raise the value they place on an additional dollar of cash in firms that migrate to this segment.

We used in this article a sample of Brazilian public firms with data available. In this sense, our focus in firms from the premium listing potentially introduces a sample bias in our analyses, given that the sample used is not randomly selected from the population of Brazilian companies. Moreover, De Carvalho and Pennacchi (2012) point that companies with valuable growth opportunities are more likely to migrate to voluntarily commit to the exchange's higher standards⁴ as a bonding mechanisms for limiting expropriation (De Carvalho & Pennacchi, 2012). Therefore, the sample of firms from the premium listing cannot be random. In this sense, our results may lead to inconsistent estimates if we do not control for potential self-selection.

In an attempt to be more careful and rigorous with our results, we also apply Heckman's (1979) two-stage procedure with corrected standard errors in a final robustness check to mitigate part of the self-selection biases. We follow the articles of Frésard and Salva (2010) and De Carvalho and Pennacchi (2012) and include size (log of net assets), growth opportunities (yearly growth rate of a firm's sales), leverage (ratio of total debt to total assets) and Return on Assets (ROA) as instruments. We include these variables as instruments because the literature suggest that they could affect the decision for choosing the premium listing and to cross-list on a foreign exchange.

The choice variable in the first stage (selection equation) equals one if a company is from the premium listing and from each of the three high-governance listings. The second stage, in turn, the market value of cash is estimated by OLS (Ordinary Least Squares) with the inverse Mills ratio included as an additional explanatory variable. Our self-selection model can be observed as follow:

$$\text{Probit Regression: } \textit{Premium Listing} = \alpha_1 + \alpha_2 \textit{Size}_{i,t} + \alpha_3 \textit{Growth Opportunities}_{i,t} + \alpha_4 \textit{Leverage}_{i,t} + \alpha_5 \textit{ROA}_{i,t} + u_{i,t} \quad (3)$$

$$\text{OLS Regression: } V_{i,t} = \beta_{j1} + \beta_{j2} E_{i,t} + \beta_{j3} dE_{i,t} + \beta_{j4} dE_{i,t+1} + \beta_{j5} dNa_{i,t} + \beta_{j6} dNa_{i,t+1} + \beta_{j7} \textit{Growth Opportunities}_{i,t} + \beta_{j8} I_{i,t} + \beta_{j9} dI_{i,t} + \beta_{j10} dI_{i,t+1} + \beta_{j11} D_{i,t} + \beta_{j12} dD_{i,t} + \beta_{j13} dD_{i,t+1} + \beta_{j14} dV_{i,t+1} + \beta_{j15} d\textit{Cash}_{i,t} + \beta_{j16} d\textit{Cash}_{i,t+1} + \beta_{\lambda j} \lambda_{j,i} + \epsilon_{i,t} \quad (4)$$

The results are presented in Table 7.

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⁴ Unreported results from the first-stage probit estimations, however, do not point that firms with higher investment opportunities, measured as yearly growth rate of a firm's sales, are more likely to migrate to the premium listing.

Although the significance of the Mills ratio in deciding to migrate to the premium listing, which indicate the presence of selection bias, we still observe that the value shareholders assigns to an additional dollar of cash on balance sheet is greater for firms from the premium listing relative to those firms that did not migrate to the exchange's higher standards. These results, after controlling for self-selection, provide additional support for our hypothesis. Unreported results of the first-stage probit estimations indicate that size, leverage and profitability are positive and significantly related to the likelihood to migrate to the premium listing.

Overall, the results discussed in this subsection lends further support to our hypothesis that shareholders do raise the value they place on an additional dollar of cash reserves in firms that voluntarily adhere to these levels, especially for firm from New Market. Thus, our findings suggest that companies can cut back a substantial source of value loss by voluntarily migrating to the premium level.

5. CONCLUDING REMARKS

A substantial source of value loss related with weaker corporate governance mechanisms materializes through investors' markdown of cash (Frésard & Salva, 2010). The Brazilian market, as many countries, face serious political opposition to reform corporate laws to protect minority shareholders. The initiative of the São Paulo Stock Exchange that create three premium listing with higher governance standards in addition to maintaining its traditional listing, as a private contractual arrangement, offers a unique opportunity to analyze if these mechanisms can reduce insiders' expropriation of cash. In this article, we hypothesize that an additional dollar of cash on balance sheet worth more in firms that voluntarily migrate to these levels, especially for those listed on the segment with the highest standards of governance, where firms can only issue shares with voting rights. To accomplish this, we used a sample of 197 firms with data available from 2000 to 2018.

We adapted the model used by Pinkowitz et al. (2006) and we find results consistent with our hypothesis that investors value cash at sizable discount in firms that did not choose the improved standards, where insiders are better able to use cash to finance their private benefits at the expense of minority shareholders. These numbers support the agency costs based on the free cash flow theory, since we document that the market value of cash is statistically and economically significantly greater in well-governed firms (\$0.427). In this sense, the results we report show that investors do raise the value they place on cash when a firm migrate

optionally to higher listing levels with stricter governance standards, indicating a more severe agency costs in firms that did not migrate to the premium listing.

The analyzes also reveals that the market value of an extra dollar of cash in Brazil is, on average, less than one dollar (\$0.291). These findings imply that investors do not expect to receive the full benefits of cash and, consequently, they discount the value of cash in Brazil. Overall, our evidence are in line with the findings of Pinkowitz et al. (2006), Kalcheva and Lins (2007) and Drobetz et al. (2010), which posits that cash is less valuable in countries with poor investor protection. Hence, our article documents that the stock market discount the market value of cash because they expect agency problems to be significant in Brazil.

Moreover, we show that investors assign a higher value to a company's cash for firms listed on New Market (\$0.547) where companies, in addition to meeting all the requirements for Levels 1 and 2, can only issue shares with voting rights. As mentioned earlier, investors expect cash to be partly consume as a private benefit of control in dual-class companies (Masulis et al., 2009). Consistent with this argument, we find that shareholders associated dual-class companies with discount regarding the market value of cash than in single-class firms.

In addition, our results also document that a premium listing in the highest standards (New Market), can be a similar way of bonding a company to protect minority shareholders as to cross-list on U.S. exchanges. This occur because cash are valued slightly more, on average, in firms from New Market than in those Brazilian companies that cross-list its shares on U.S. market. Hence, a listing on the highest standards of the premium segment leads to an increase in the market value of cash that are, at least, similar to cross listing on a U.S. exchange.

In conclusion, our empirical research indicate that the initiative of the Brazilian stock exchange that permitted its listed companies to commit to a non-mandatory premium listing with stricter governance standards was successful to increase the value that the market attaches to a firm's cash holdings. Therefore, in firms that voluntarily adhere to these levels minority shareholders are less likely to have their resources expropriate from insiders. As a result, firms that voluntarily commit to these levels enjoy higher valuation of cash by the market.

Our results are robust to controlling for potential endogeneity problems, firm fixed effects and to several additional robustness checks. Despite all care in analyzing the results, our article also faces some limitations. Among these limitations, one concern is the limited number of observations of firms from Level 1 and Level 2, which is probably the main reason for the lack of statistical significance in the estimated coefficients. In addition, the question of endogeneity is a relevant issue to be considered in studies on cash management and

governance. Despite our best efforts, however, we cannot say that we completely solved the endogeneity problems in this article, especially related to selection bias.

Previous studies indicate that U.S. multinational companies hold a significant portion of their cash in foreign subsidiaries. The amounts of cash held overseas, on the other hand, can be subjected to higher agency costs. Thus, futures research can analyze the market value of cash held in foreign countries, given that foreign cash can be less valuable to shareholders. Finally, new researches can also analyze if shareholders place a higher value on cash in firms audited by a Big 4 (Deloitte, Ernest Young, KPMG or PWC) given the importance of audit quality as a corporate governance mechanism that can mitigate part of the agency problems associated with cash management.

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Table 1. 1. Descriptive Statistics

Variables	Mean	Median	Std. Dev.	Minimum	Maximum
Cash/Total Assets	0.0964	0.0619	0.1084	0.0000	0.7896
$V_{i,t}$	1.006	0.791	0.726	0.110	4.182
$E_{i,t}$	0.073	0.071	0.090	-0.470	0.372
$dE_{i,t}$	0.003	0.005	0.086	-0.481	0.532
$dE_{i,t+1}$	0.006	0.004	0.089	-0.397	0.620
$dNa_{i,t}$	0.016	0.037	0.269	-1.181	0.609
$dNa_{i,t+1}$	0.075	0.017	0.317	-0.560	1.685
<i>Growth Opportunities</i> $_{i,t}$	0.104	0.058	0.370	-0.789	1.758
$I_{i,t}$	0.061	0.046	0.058	0.000	0.442
$dI_{i,t}$	0.001	0.001	0.040	-0.221	0.182
$dI_{i,t+1}$	0.001	0.001	0.040	-0.211	0.154
$D_{i,t}$	0.024	0.013	0.034	0.000	0.184
$dD_{i,t}$	0.001	0.000	0.023	-0.088	0.096
$dD_{i,t+1}$	0.002	0.000	0.024	-0.088	0.098
$dV_{i,t+1}$	0.000	0.000	0.000	0.000	0.000
$dCash_{i,t}$	-0.001	0.001	0.095	-0.843	0.725
$dCash_{i,t+1}$	0.006	0.000	0.089	-0.261	0.338

Our sample consist of 197 Brazilian public firms from 2000 to 2018. All the continuous variables were winsorized at the 1% in tails. The dependent variable (V) in all specifications 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 to control for heteroscedasticity.

Table 1. 2. Fixed Effects Regression

	Brazilian Public Firms	Premium Listing	Non-Premium Listing	New Market	Level 1	Level 2
Variables	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)
Constant	0.832 (0.000 ***)	0.930 (0.000 ***)	0.681 (0.000 ***)	0.997 (0.000 ***)	0.721 (0.000 ***)	0.858 (0.000 ***)
$E_{i,t}$	1.085 (0.001 ***)	1.549 (0.008 ***)	0.545 (0.144)	1.519 (0.037 **)	0.956 (0.059 *)	1.611 (0.085 *)
$dE_{i,t}$	-0.021 (0.897)	-0.164 (0.567)	0.048 (0.784)	-0.103 (0.752)	-0.120 (0.741)	-0.545 (0.413)
$dE_{i,t+1}$	0.295 (0.058 *)	0.591 (0.101)	0.050 (0.720)	0.583 (0.196)	0.417 (0.138)	0.749 (0.173)
$dNa_{i,t}$	0.217 (0.000 ***)	0.229 (0.001 ***)	0.186 (0.008 ***)	0.265 (0.005 ***)	0.238 (0.024 **)	0.119 (0.496)
$dNa_{i,t+1}$	0.061 (0.090 *)	0.014 (0.809)	0.081 (0.061 *)	-0.012 (0.877)	0.113 (0.120)	0.189 (0.075 *)
<i>Growth Opportunities</i> $_{i,t}$	0.113 (0.000 ***)	0.155 (0.004 ***)	0.048 (0.127)	0.202 (0.001 ***)	0.013 (0.872)	0.129 (0.281)
$I_{i,t}$	-1.153 (0.045 **)	-1.568 (0.034 **)	-0.302 (0.702)	-1.094 (0.254)	-0.486 (0.449)	-3.856 (0.008 ***)
$dI_{i,t}$	0.545 (0.034 **)	0.388 (0.253)	0.409 (0.174)	-0.140 (0.791)	0.455 (0.295)	1.939 (0.081 *)
$dI_{i,t+1}$	-0.168 (0.668)	-0.286 (0.553)	-0.062 (0.918)	0.089 (0.881)	-0.089 (0.861)	-0.801 (0.481)
$D_{i,t}$	6.194 (0.000 ***)	7.719 (0.000 ***)	4.400 (0.001 ***)	7.476 (0.000 ***)	5.742 (0.001 ***)	10.450 (0.004 ***)
$dD_{i,t}$	-1.977 (0.000 ***)	-1.798 (0.015 **)	-1.874 (0.016 **)	-1.928 (0.047 **)	-1.048 (0.351)	1.196 (0.467)
$dD_{i,t+1}$	1.585 (0.008 ***)	2.481 (0.001 ***)	0.955 (0.067 *)	2.294 (0.010 **)	2.066 (0.066 *)	7.196 (0.000 ***)
$dV_{i,t+1}$	-56540.2 (0.000 ***)	-1055 (0.001 ***)	-41191.2 (0.000 ***)	-93808.5 (0.004 ***)	-1829 (0.000 ***)	-4097 (0.000 ***)
$dCash_{i,t}$	0.291 (0.009 ***)	0.427 (0.009 ***)	0.174 (0.164)	0.547 (0.004 ***)	0.214 (0.364)	0.137 (0.672)
$dCash_{i,t+1}$	-0.041 (0.722)	-0.126 (0.484)	0.059 (0.655)	-0.030 (0.884)	-0.041 (0.827)	0.178 (0.627)
Adjusted R ²	30.48%	42.89%	20.16%	41.95%	44.75%	74.86%
<i>P</i> -Value	0.000	0.000	0.000	0.000	0.000	0.000
Highest VIF	2.306	2.864	2.069	2.888	3.507	3.936
Chow-test	-	$\chi^2= 14.81^{***}$	$\chi^2=14.81^{***}$	$\chi^2= 17.89^{***}$	$\chi^2= 2.79^{***}$	$\chi^2= 3.00^{***}$
Robust Standard Errors	Yes	Yes	Yes	Yes	No	No
Observations	2293	1229	1064	849	268	112

Notes: The dependent variable (V) in all specifications 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 to control for heteroscedasticity. Figures in parentheses are the p -values. All the continuous variables were winsorized at the 1% in tails. For each model the results of a Chow-test (χ^2 -test) is reported. * statistically significant at 10%; ** statistically significant at 5%; *** statistically significant at 1%.

Table 1. 3. Fixed Effects Regression

	Brazilian Public Firms	Premium Listing	Non-Premium Listing	New Market	Level 1	Level 2
Variables	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)
Constant	0.570 (0.000 ***)	0.649 (0.000 ***)	0.471 (0.000 ***)	0.733 (0.000 ***)	0.393 (0.000 ***)	0.439 (0.074 *)
$E_{i,t}$	1.142 (0.000 ***)	1.430 (0.018 **)	0.653 (0.111)	1.234 (0.095 *)	1.504 (0.002 ***)	1.508 (0.137)
$dE_{i,t}$	0.026 (0.872)	-0.012 (0.965)	0.053 (0.771)	0.125 (0.684)	-0.279 (0.439)	-0.519 (0.387)
$dE_{i,t+1}$	0.380 (0.014 **)	0.687 (0.029 **)	0.123 (0.414)	0.697 (0.070 *)	0.544 (0.051 *)	0.646 (0.287)
$dNA_{i,t}$	0.207 (0.000 ***)	0.218 (0.002 ***)	0.170 (0.014 **)	0.263 (0.005 ***)	0.263 (0.012 **)	0.145 (0.319)
$dNA_{i,t+1}$	0.097 (0.008 ***)	0.051 (0.369)	0.118 (0.011 **)	0.031 (0.680)	0.133 (0.065 *)	0.226 (0.083 *)
<i>Growth Opportunities</i> $_{i,t}$	0.132 (0.000 ***)	0.163 (0.001 ***)	0.075 (0.022 **)	0.201 (0.001 ***)	0.002 (0.979)	0.171 (0.222)
$I_{i,t}$	-1.981 (0.000 ***)	-2.451 (0.002 ***)	-1.258 (0.086 *)	-1.939 (0.031 **)	-0.873 (0.171)	-3.148 (0.201)
$dI_{i,t}$	0.592 (0.022 **)	0.547 (0.050 *)	0.451 (0.165)	-0.082 (0.850)	0.569 (0.187)	1.418 (0.118)
$dI_{i,t+1}$	-0.575 (0.134)	-0.752 (0.156)	-0.588 (0.271)	-0.535 (0.401)	0.047 (0.926)	-0.754 (0.703)
$D_{i,t}$	7.175 (0.000 ***)	8.377 (0.000 ***)	5.484 (0.000 ***)	8.038 (0.000 ***)	4.691 (0.009 ***)	11.712 (0.059 *)
$dD_{i,t}$	-2.121 (0.000 ***)	-1.697 (0.015 **)	-2.234 (0.009 ***)	-1.745 (0.067 *)	-0.349 (0.753)	0.643 (0.632)
$dD_{i,t+1}$	2.104 (0.001 ***)	3.167 (0.000 ***)	1.289 (0.020 **)	2.886 (0.003 ***)	2.152 (0.054 *)	7.873 (0.053 *)
$dV_{i,t+1}$	-62738.1 (0.000 ***)	-1457 (0.000 ***)	-41188.0 (0.000 ***)	-13733 (0.000 ***)	-1863 (0.000 ***)	-4272 (0.006 ***)
$dCash_{i,t}$	0.211 (0.062 *)	0.379 (0.012 **)	0.068 (0.614)	0.446 (0.011 **)	0.278 (0.233)	0.197 (0.688)
$dCash_{i,t+1}$	-0.028 (0.809)	-0.065 (0.701)	0.059 (0.664)	0.004 (0.982)	0.057 (0.763)	0.144 (0.745)
Adjusted R ²	35.36%	49.32%	23.35%	47.98%	50.26%	76.57%
<i>P</i> -Value	0.000	0.000	0.000	0.000	0.000	0.000
Highest VIF	2.304	2.810	2.070	2.819	3.51	4.009
Chow-test	-	$\chi^2=8.65^{***}$	$\chi^2=8.65^{***}$	$\chi^2=12.64^{***}$	$\chi^2=4.97^{***}$	$\chi^2=3.00^{***}$
Robust Standard Errors	Yes	Yes	Yes	Yes	No	Yes
Observations	2293	1229	1064	849	268	112

Notes: The dependent variable (*V*) in all specifications is the market value of firm (Tobin's Q), which is calculated as the ratio of the firm's market value to total 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 to control for heteroscedasticity. Figures in parentheses are the *p*-values. All the continuous variables were winsorized at the 1% in tails. For each model the results of a Chow-test (χ^2 -test) is reported. * statistically significant at 10%; ** statistically significant at 5%; *** statistically significant at 1%.

Table 1. 4. Fixed Effects Regression

	Brazilian Public Firms	Premium Listing	Non-Premium Listing	New Market	Level 1	Level 2
Variables	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)
Constant	0.839 (0.000 ***)	0.944 (0.000 ***)	0.685 (0.000 ***)	1.021 (0.000 ***)	0.721 (0.000 ***)	0.880 (0.000 ***)
$E_{i,t}$	1.104 (0.000 ***)	1.537 (0.008 ***)	0.561 (0.132)	1.486 (0.041 **)	0.960 (0.057 *)	1.407 (0.149)
$dE_{i,t}$	0.062 (0.696)	0.046 (0.847)	0.066 (0.709)	0.135 (0.626)	-0.092 (0.772)	-0.356 (0.553)
$dE_{i,t+1}$	0.359 (0.022 **)	0.699 (0.049 **)	0.07 (0.622)	0.726 (0.109)	0.429 (0.113)	0.767 (0.150)
$dNA_{i,t}$	0.307 (0.000 ***)	0.348 (0.000 ***)	0.225 (0.001 ***)	0.423 (0.000 ***)	0.248 (0.003 ***)	0.205 (0.137)
$dNA_{i,t+1}$	0.07 (0.050 *)	0.033 (0.568)	0.083 (0.058 *)	0.028 (0.707)	0.112 (0.121)	0.198 (0.119)
$I_{i,t}$	-1.163 (0.044 **)	-1.608 (0.030 **)	-0.314 (0.691)	-1.197 (0.212)	-0.482 (0.452)	-4.080 (0.104)
$dI_{i,t}$	0.557 (0.031 **)	0.405 (0.241)	0.414 (0.167)	-0.124 (0.819)	0.454 (0.295)	2.038 (0.022 **)
$dI_{i,t+1}$	-0.173 (0.661)	-0.314 (0.519)	-0.069 (0.909)	0.020 (0.973)	-0.091 (0.859)	-0.953 (0.649)
$D_{i,t}$	6.208 (0.000 ***)	7.734 (0.000 ***)	4.406 (0.001 ***)	7.462 (0.000 ***)	5.753 (0.001 ***)	11.100 (0.075 *)
$dD_{i,t}$	-1.911 (0.000 ***)	-1.671 (0.023 **)	-1.868 (0.016 **)	-1.744 (0.071 *)	-1.052 (0.348)	1.363 (0.365)
$dD_{i,t+1}$	1.558 (0.000 ***)	2.488 (0.001 ***)	0.928 (0.077 *)	2.175 (0.014 **)	2.098 (0.058 *)	7.763 (0.056 *)
$dV_{i,t+1}$	-56679.0 (0.000 ***)	-10669 (0.001 ***)	-41121.9 (0.000 ***)	-95307.6 (0.004 ***)	-18292 (0.000 ***)	-42461 (0.008 ***)
$dCash_{i,t}$	0.335 (0.003 ***)	0.463 (0.007 ***)	0.200 (0.115)	0.585 (0.003 ***)	0.223 (0.327)	0.099 (0.818)
$dCash_{i,t+1}$	-0.053 (0.647)	-0.151 (0.399)	0.058 (0.660)	-0.066 (0.757)	-0.042 (0.824)	0.048 (0.888)
Adjusted R ²	30.02%	42.20 %	20.04%	40.79%	44.75%	74.45%
<i>P</i> -Value	0.000	0.000	0.000	0.000	0.000	0.000
Highest VIF	2.303	2.829	2.068	2.847	3.505	3.497
Chow-test	-	$\chi^2= 15.61^{***}$	$\chi^2=15.61^{***}$	$\chi^2= 18.93^{***}$	$\chi^2= 2.81^{***}$	$\chi^2= 2.68^{***}$
Robust Standard Errors	Yes	Yes	Yes	Yes	No	Yes
Observations	2293	1229	1064	849	268	112

Notes: The dependent variable (V) in all specifications 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; 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 to control for heteroscedasticity. Figures in parentheses are the p -values. All the continuous variables were winsorized at the 1% in tails. For each model the results of a Chow-test (χ^2 -test) is reported. * statistically significant at 10%; ** statistically significant at 5%; *** statistically significant at 1%.

Table 1. 5. Fixed Effects Regression

	Brazilian Public Firms	Premium Listing	Non-Premium Listing	New Market	Level 1	Level 2
Variables	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)
Constant	0.832 (0.000 ***)	0.932 (0.000 ***)	0.674 (0.000 ***)	0.991 (0.000 ***)	0.709 (0.000 ***)	0.908 (0.000 ***)
$E_{i,t}$	0.904 (0.007 ***)	1.402 (0.023 **)	0.351 (0.337)	1.564 (0.035 **)	0.163 (0.788)	2.269 (0.007 ***)
$dE_{i,t}$	0.047 (0.780)	-0.125 (0.680)	0.0636 (0.717)	-0.081 (0.809)	-0.045 (0.920)	-0.399 (0.514)
$dE_{i,t+1}$	0.260 (0.108)	0.553 (0.147)	-0.018 (0.896)	0.597 (0.199)	-0.006 (0.983)	1.703 (0.002 ***)
$dNA_{i,t}$	0.226 (0.000 ***)	0.249 (0.001 ***)	0.185 (0.009 ***)	0.251 (0.011 **)	0.292 (0.021 **)	0.137 (0.376)
$dNA_{i,t+1}$	0.069 (0.066 *)	0.000 (0.991)	0.119 (0.006 ***)	-0.018 (0.818)	0.123 (0.160)	0.046 (0.686)
<i>Growth Opportunities</i> $_{i,t}$	0.116 (0.001 ***)	0.174 (0.001 ***)	0.045 (0.169)	0.22 (0.001 ***)	-0.014 (0.894)	0.091 (0.433)
$I_{i,t}$	-0.958 (0.112)	-1.156 (0.140)	-0.231 (0.779)	-0.935 (0.343)	0.820 (0.282)	-2.931 (0.024 **)
$dI_{i,t}$	0.532 (0.043 **)	0.350 (0.345)	0.380 (0.207)	-0.177 (0.745)	0.190 (0.714)	1.478 (0.179)
$dI_{i,t+1}$	-0.077 (0.856)	-0.031 (0.951)	-0.059 (0.929)	0.254 (0.674)	0.765 (0.214)	-2.560 (0.029 **)
$D_{i,t}$	6.235 (0.000 ***)	8.135 (0.000 ***)	3.136 (0.000 ***)	7.649 (0.000 ***)	7.624 (0.009 ***)	4.093 (0.189)
$dD_{i,t}$	-1.882 (0.000 ***)	-2.076 (0.011 **)	-1.014 (0.017 **)	-1.937 (0.059 *)	-2.621 (0.091 *)	0.561 (0.704)
$dD_{i,t+1}$	1.642 (0.020 **)	2.413 (0.006 ***)	0.901 (0.150)	2.321 (0.013 **)	1.483 (0.384)	2.016 (0.303)
$dV_{i,t+1}$	-55944.9 (0.000 ***)	-1026 (0.001 ***)	-40941.5 (0.000 ***)	-92798.9 (0.005 ***)	-17588 (0.000 ***)	-2809 (0.000 ***)
$dCash_{i,t}$	0.24 (0.031 **)	0.416 (0.010 **)	0.118 (0.345)	0.573 (0.003 ***)	0.383 (0.145)	-0.012 (0.966)
$dCash_{i,t+1}$	-0.095 (0.427)	-0.206 (0.243)	0.057 (0.682)	-0.022 (0.915)	-0.031 (0.882)	-0.0323 (0.929)
Adjusted R ²	29.48%	42.40%	18.73%	42.43%	44.07%	64.06%
<i>P</i> -Value	0.000	0.000	0.000	0.000	0.000	0.000
Highest VIF	2.266	2.843	2.012	2.884	3.599	3.817
Chow-test	-	$\chi^2= 25.95^{***}$	$\chi^2= 25.95^{***}$	$\chi^2= 23.62^{***}$	$\chi^2= 1.81^{**}$	$\chi^2= 4.86^{***}$
Robust Standard Errors	Yes	Yes	Yes	Yes	No	No
Observations	2028	1084	944	796	191	97

Notes: The dependent variable (V) in all specifications 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 to control for heteroscedasticity. Figures in parentheses are the p -values. All the continuous variables were winsorized at the 1% in tails. For each model the results of a Chow-test (χ^2 -test) is reported. * statistically significant at 10%; ** statistically significant at 5%; *** statistically significant at 1%.

**Table 1. 6. Fixed Effects Regression
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Variables	Coefficients (<i>p</i> -value)
Constant	0.783 (0.000 ***)
$E_{i,t}$	3.304 (0.001 ***)
$dE_{i,t}$	-1.353 (0.038 **)
$dE_{i,t+1}$	0.584 (0.368)
$dNa_{i,t}$	0.174 (0.112)
$dNa_{i,t+1}$	-0.059 (0.543)
<i>Growth Opportunities</i> $_{i,t}$	0.043 (0.648)
$I_{i,t}$	-2.847 (0.032 **)
$dI_{i,t}$	0.454 (0.490)
$dI_{i,t+1}$	-1.202 (0.147)
$D_{i,t}$	4.337 (0.091 *)
$dD_{i,t}$	-1.734 (0.192)
$dD_{i,t+1}$	0.881 (0.208)
$dV_{i,t+1}$	-1.047 (0.000 ***)
$dCash_{i,t}$	0.521 (0.062 *)
$dCash_{i,t+1}$	-0.205 (0.206)
Adjusted R ²	60.53%
<i>P</i> -Value	0.000
Highest VIF	2.953
Chow-test	$\chi^2 = 6.02$ ***
Robust Standard Errors	Yes
Observations	265

Notes: The dependent variable (*V*) 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 to control for heteroscedasticity. Figures in parentheses are the *p*-values. All the continuous variables were winsorized at the 1% in tails. For each model the results of a Chow-test (χ^2 -test) is reported. * statistically significant at 10%; ** statistically significant at 5%; *** statistically significant at 1%.

Table 1. 7. Heckman's (1979) two-stage procedure with corrected standard errors

Variables	Premium Listing	New Market	Level 1	Level 2
	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)
Constant	0.457 (0.000 ***)	0.168 (0.280)	0.510 (0.000 ***)	1.616 (0.009 ***)
$E_{i,t}$	2.037 (0.000 ***)	2.587 (0.000 ***)	1.945 (0.000 ***)	2.285 (0.035 **)
$dE_{i,t}$	-0.309 (0.264)	-0.325 (0.341)	-0.281 (0.000 ***)	-1.147 (0.222)
$dE_{i,t+1}$	0.647 (0.009 ***)	0.871 (0.005 ***)	0.857 (0.008 ***)	0.320 (0.684)
$dNa_{i,t}$	0.458 (0.000 ***)	0.482 (0.000 ***)	0.469 (0.000 ***)	-0.023 (0.918)
$dNa_{i,t+1}$	-0.014 (0.809)	-0.066 (0.368)	0.057 (0.483)	0.132 (0.343)
<i>Growth Opportunities</i> $_{i,t}$	0.160 (0.006 ***)	0.188 (0.008 ***)	-0.089 (0.385)	0.372 (0.033 **)
$I_{i,t}$	0.446 (0.192)	0.687 (0.106)	0.296 (0.526)	-0.460 (0.714)
$dI_{i,t}$	0.000 (0.998)	-0.629 (0.324)	0.233 (0.647)	1.977 (0.208)
$dI_{i,t+1}$	0.688 (0.147)	0.893 (0.152)	0.005 (0.992)	2.379 (0.084 *)
$D_{i,t}$	12.157 (0.000 ***)	12.039 (0.000 ***)	7.124 (0.000 ***)	4.075 (0.091 *)
$dD_{i,t}$	-3.523 (0.000 ***)	-3.950 (0.000 ***)	-1.556 (0.213)	3.199 (0.144)
$dD_{i,t+1}$	4.096 (0.000 ***)	3.800 (0.000 ***)	2.533 (0.038 **)	7.032 (0.007 ***)
$dV_{i,t+1}$	-1023 (0.000 ***)	-84592.3 (0.000 ***)	-1627 (0.000 ***)	-3439 (0.000 ***)
$dCash_{i,t}$	0.616 (0.000 ***)	0.836 (0.000 ***)	0.759 (0.007 ***)	0.434 (0.348)
$dCash_{i,t+1}$	-0.195 (0.304)	-0.104 (0.676)	0.290 (0.207)	0.485 (0.346)
$\lambda_{j,i}$	0.311 (0.000 ***)	0.537 (0.000 ***)	0.031 (0.607)	-0.424 (0.147)
Adjusted R ²	53.21%	57.21%	48.21%	41.59%
<i>P</i> -Value	0.000	0.000	0.000	0.000
Highest VIF	2.306	3.220	3.512	3.984
Observations	1229	849	268	112

Notes: The dependent variable (V) in all specifications 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, $((X_{t+1} - X_t) / Total Assets_t)$; $\lambda_{j,i}$ (Lambda) refer to the inverse Mills ratios independently calculated from unreported probit estimations where the dependent variable are the choice to migrate to the Premium Listing, New Market, Level 1 and Level 2, respectively. All variables used, except Growth Opportunities, were scaled by total assets to control for heteroscedasticity. Figures in parentheses are the p -values. All the continuous variables were winsorized at the 1% in tails. * statistically significant at 10%; ** statistically significant at 5%; *** statistically significant at 1%.

Appendix 1. Requirements for Corporate Governance Level 1, Level 2 and New Market.

Requirements for Corporate Governance Level 1

- Maintenance of a free-float of 25% of capital;
 - Public offering for the placing of shares maximize “capital dispersion to a broader spectrum of shareholders”;
 - Improved disclosure of quarterly information, consolidated statements and audits;
 - Disclosure of insider and controlling shareholders’ trading;
 - Disclosure of shareholder agreements and stock option programs;
 - Facilitate annual calendar of corporate events.
-

Additional Requirements for Corporate Governance Level 2

- Two-year mandate for Board of Directors;
 - Annual Balance sheet in accordance with US GAAP (Generally Accepted Accounting Principles) or IFRS (International Financial Reporting Standards);
 - Tag-along rights for minority shareholders;
 - Voting rights to preferred shareholders in the event of a merger or acquisition, spin-off, or the signing of contracts;
with firms belonging to the same group;
 - De-listing from Level 2 through tender offer using the economic value criteria;
 - Adherence to the Market Arbitration Panel for conflict resolution.
-

Additional Requirement for New Market

- Firms can issue only shares with voting rights.
-

Notes: Chavez and Silva (2009, p. 36)

Audit quality and the market value of cash: the role-played by the Big 4 auditor in Latin America

Manuscript Type: Empirical

Research Question/Issues: 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.

Research Findings/Insights: Our research provide an interesting insight into the importance of audit quality in the determination of the value that investors place on each additional dollar of cash held on balance sheet. Overall, the obtained results do not support the existence of a Big 4 premium relative to the value that investors place on a dollar of cash, thereby rejecting our hypothesis. Furthermore, we also find that that the market value of cash in Latin American firms is, on average, almost zero and in some countries even negative. The results hold after a series of robustness checks, endogeneity concerns and self-selection bias.

Theoretical/Academic Implications: 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. Additionally, we also provide theoretical contributions by identifying a greater discount for liquid assets in emerging economies. Therefore, our finding are consistent with agency theory and suggest that shareholders identify the potential benefits embodied in cash and consequently discount their value in Latin American.

Practitioner/Policy Implications: Our study have implications for the debate concerning the role played by audit quality, given that we demonstrate that a Big 4 premium is not observed in the Latin America setting. Finally, we also provide practitioner implications by demonstrating that investors indeed discount the value of cash in emerging economies because of the greater ability of entrenched managers to extract private benefits from cash.

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

JEL Classification: G32, G34, M42

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; Palmrose, 1988; Teoh & Wong, 1993; Becker et al., 1998; Francis; 2004; Defond & Zhang, 2014; 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 managers to consume private benefits attached to cash relative to other assets (Myers & Rajan, 1998; 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

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.

entrenchment related to its use (Dittmar & Mahrt-Smith, 2007; Masulis, Wang, & Xie, 2009; Manoel & Moraes, 2019). Second, because cash represents a significant part of firm's total assets and the literature document a dramatic increase in cash levels in the last years. This dramatic rise in cash, in turn, has attracted much attention from both academic and popular press (Graham & Leary, 2018; 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, Grüniger, & 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).

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 (Aggarwal, Klapper, & Wysocki, 2005; Michas, 2011). These investors, in turn, suffer serious information problems, in a manner that, they are at an informational disadvantage in comparison to local investors (Leuz, Lins, & Warnock, 2010). 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). We provide a brief discussion about this method in Section 3. 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

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.

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 has 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). To address the self-selection bias resulted from the use of a non-random sample of firm's decision to hire a Big 4 or not, we employ a Heckman's (1979) two-stage procedure with corrected standard errors to improve the estimates obtained with non-random samples. We reject the null hypothesis that clients are randomly allocated across Big 4 and non-Big 4 auditors. Even after applying the Heckman procedure, our results continue to support the nonexistence of a Big 4 effect.

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 mentions, for example, as financing day-to-day operations (Keynes, 1936; 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 (Keynes, 1936; 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 (Keynes, 1936; Opler et al., 1999; Bates et al., 2009). In addition, cash is an important tool for financial constrained firms, especially during financial crises period (Manoel, Moraes, Santos, & Neves, 2017; Manoel & Moraes, 2018).

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 (Myers & Rajan, 1998; Opler et al., 1999; Dittmar et al., 2003; Dittmar & Mahrt-Smith, 2007; Masulis et al., 2009; Graham & Leary, 2018). 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; Myers & Rajan, 1998), 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 (Manoel, Moraes, Nagano, & Sobreiro, 2018). 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

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

potential to increase the value of a company (Jensen & Meckling, 1976; Defond & Francis, 2005).

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; Palmrose, 1988; 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).

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 recognize around the world by providing higher-audit quality in order to maintain their brand-name reputation (DeAngelo, 1981; Palmrose, 1988; 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 have 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 do not have the same incentives to protect their reputation and to avoid costly litigation (DeAngelo, 1981; Palmrose, 1988; Francis, 2004).

Previous literature also document that financial statements audited by a Big 4 auditor are more credible, since these auditor 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).

Furthermore, foreign investors play an important role in promoting economic growth in emerging economies (Aggarwal et al., 2005). These investors, however, are more reluctance to acquire foreign equities (Leuz et al., 2010). Leuz et al. (2010) attribute this "home bias" to the serious problems of information asymmetry, including the difficulty in monitoring insiders of foreign companies and the scarcity of reliable financial reporting. As a result, foreign investors require high-quality financial reporting to better monitor managers and to reduce the level of information asymmetry (Guedhami, Pittman, & Saffar, 2009).

By hiring a Big 4 auditor, a company is signaling to the foreign investors that financial statements are of high quality, which reduces monitoring costs and limits the ability of self-interested managers to extract private benefits (Michas, 2011). In this sense, Guedhami et al. (2009) argue that foreign investors may prefer a Big 4 auditor because they perceive a large auditor as preparing more credible financial statements and also because they expect that a Big 4 are more likely to detect manipulate accounting numbers (Guedhami et al., 2009; Aggarwal et al., 2005; Michas, 2011).

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. In a more recent study, Huang et al. (2019) verify that audit quality play an important role in explaining the value that shareholders place on a dollar of cash. Finally, the empirical evidence of Lennox and Pittman (2010) suggest that a Big N auditor are, on average, about four times less likely to commit accounting fraud, reinforcing previous literature that suggest that brand-name auditors are associated with higher quality financial statements.

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

These arguments, however, do not suggest that a Big 4 audits are always superior. Both small and large auditor can potentially conduct a competent audit process in accordance with current legislation (Defond & Francis, 2005). Indeed, the above evidence mean that, on average, Big 4 audits are of higher quality than small audit firms (DeAngelo, 1981; Francis, 2004; Defond & Francis, 2005). 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 firm (Fan & Wong, 2005; Michas, 2011).

The literature document 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 value more 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 discount 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 is also reasons to support that a high-quality audit, proxied by the selection of a Big 4 auditor, do not lead to a higher valuation of cash from the market. First, there is another governance mechanisms that public companies can use in substitution or complementing of audit quality (Choi & Wong, 2007). In addition, public firms are under the supervision of market authorities and financial analysts, which provide additional protection to shareholders. Therefore, public firms are located in an environmental 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) to analyze the impact of debt and dividends on firm value. Pinkowitz et al. (2006) and Dittmar and Mahrt-Smith (2007) modify their valuation model to estimate the market value of a dollar of cash. For that, they split up the changes in assets into its cash and non-cash

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

components. The dependent variable of the valuation model is the market-to-book ratio as a proxy of firm value. The control variables used are those that are expected to affect shareholders' expectations of future net cash flows, which determine the value of a company. The determinants of future cash flows are past changes, future changes, and current levels of Earnings, R&D Expenses, Dividends, Interest Expenses, as well as past and future changes in Assets and future changes in Market Value. Future changes are included to absorb changes in expectations.

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; RD is research and development (R&D) expenditure; I is interest expense; D is total dividends paid. All variables are normalized by the total assets 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), then 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.

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

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

The coefficient on the change in cash holdings (β_{14}) can be viewed as a measure 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). According to Pinkowitz et al. (2006), this equation allows researchers to evaluate the impact of a change in cash balances keeping the other variables unchanged. As a result, we can evaluate the impact of an increase in cash holdings that brings about an increase in total assets by the same amount rather than an exchange of fixed assets for cash (Pinkowitz et al., 2006).

Auditor choice (Big 4 or non-Big 4) are a corporate decision rather than a random assignment (Ireland & Lennox, 2002; Chaney, Jeter, & Shivakumar, 2004; Clatworthy, Makepeace, & Peel, 2009; Jiang, Wang, & Wang, 2019). In this sense, ordinary least squares (OLS) regressions that ignore the self-selection problems will produce biased results (Chaney et al., 2004). Hence, in the initial analyses 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 mitigates the endogeneity problems and also controls 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 observations 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 are growing (one-year growth rate in sales) at about 10.31% per year.

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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

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

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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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. The obtained evidences, 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 find 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.

In the same way, our findings for the Brazilian subsample are also consistent with those of Manoel and Moraes (2019). Based on a sample of public firms from this country, over the period of 2000-2018, the authors find that a one-real increase in cash holdings in Brazil is associated with an increase in firm value of \$0.291 cents. In addition, their evidence also suggest that the initiative of the Brazilian Stock Exchange, that created a voluntary premium listing with stricter governance standards in addition to allowing existing firms to retain the regular listing in 2000, was successful to increase the value that shareholders place on a dollar of cash (\$0.427).

Manoel and Moraes (2019) pointed out that before the creation of the premium listing, the Brazilian market was characterized by weak investor protection. As a response to the increased demand for superior shareholders protection and in a context where legislative reforms were difficult to implement, the Brazilian Stock Market launched this alternative bonding mechanism of voluntary adoption. Firms that voluntarily commit to the higher standards of the premium listing are subject to governance and disclosure requirements that go beyond the legal minimums required by the Brazilian laws. Given that the premium exchange listing provide a credible governance mechanism that better protect shareholders, Manoel and Moraes (2019) obtained evidence that investors place a higher value on cash in companies that voluntarily chose the exchange's higher standards.

Therefore, the success of the initiative of the Brazilian stock market in creating a premium listing of corporate governance that increased shareholder protection may explain, at least in part, why Brazil was the only country in Latin America that investors place a positive value on cash holdings. Investors from the other Latin American countries, aware that these countries do not offer a similar degree of investor protection against cash misappropriation, value the cash of them at a sizable discount.

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 corporations 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 (Pinkowitz & Williamson, 2007). 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, 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 environmental 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.

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.

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 report only some of 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. In Table 3 we show that our main results are robust using another measure of firm value. The results for the control variables are also similar to those reported before.

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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.

It is also worth noting that Brazil comprise 50.15% of the sample of Latin American firms. To mitigate the concern that this country are driving our results, we delete all firms from Brazil as another robustness test. After removing this country from the sample we find that the coefficient for the change in cash was $-\$0.499$ for the full sample, implying that shareholders indeed discount the value of cash in emerging economies because of the greater ability of agent to extract private benefits from cash. Regressions results in Table 4 provide corroborating evidence of the nonexistence of a Big 4 premium after splitting this new sample into non-Big 4 and Big 4 auditors.

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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 et al., 2004; Clatworthy et al., 2009; Jiang et al., 2019). 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).

$$\text{Probit Regression: } \text{Big 4} = \alpha_1 + \alpha_2 \text{Size}_{i,t} + \alpha_3 \text{Asset Turnover}_{i,t} + \alpha_4 \text{Leverage}_{i,t} + \alpha_5 \text{ROA}_{i,t} + \alpha_6 \text{ROA} * \text{Loss}_{i,t} + \alpha_7 \text{Current Assets}_{i,t} + \alpha_8 \text{LTD}_{i,t} + u_{i,t} \quad (3)$$

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

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.

In Table 5 we present the results of the Ordinary Least Squares (OLS) with the inverse Mill's ratio (IMR), which is estimated separately for Big 4 and non-Big 4 clients. 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 presented in Table 5.

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Using this model, we reject the null hypothesis that clients are randomly allocated across Big 4 and non-Big 4 auditors. Therefore, OLS regression that ignore self-selection bias will yield biased results. 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.

The value shareholders assigns to an additional dollar of cash on balance sheet is determined by how they expect cash to be used (Dittmar & Mahrt-Smith, 2007; Kalcheva & Lins, 2007). 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. To achieve this objective, we used an unbalanced panel data of 494 Latin American public companies (4,026 firm-year observations) with data available from the Thomson Reuters database. The data are from Argentina, Brazil, Chile, Colombia, México and Peru over the sample period of 2003-2018.

Using this sample, 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. In addition, when we analyze our initial valuation model without Brazilian firms, given that this country represents 50.15% of the sample, we verify that investors assigns a negative and significant value to cash of -\$0.499 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 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. In this sense, selection bias cannot be entirely ruled out as an alternative explanation for our results.

Fifth, a firm's corporate governance system consists of multiple components. Hence, we cannot isolate the audit quality effect from the other corporate governance mechanisms. Thus, predictions about the market value of cash related to audit quality might be difficult to make without controlling for other corporate governance mechanisms. We did not control for corporate governance in the analysis because requiring data on governance would substantially reduce the sample size and also because our results were contrary to the initial hypothesis. We admit, however, that if the result were consistent with the hypothesis, it would be necessary to control for other choices in the corporate governance portfolio. New articles can extend our efforts and analyze other governance mechanisms that influence the value that shareholders place on cash, especially in emerging markets. These new researches can provide valuable insights to firms and governments that are looking for reforms of corporate governance.

Finally, although some researches posit that there are other measures of audit quality (such as, auditor industry specialization, audit fees, the market share of the audit firm, among others), we opt to use auditor size because the auditing literature suggest that the Big N is a proxy of audit quality with high construct validity (Defond & Zhang, 2014). Nevertheless, another limitation of our research is that we only used one proxy for audit quality. Hence, new studies can also employ another measures to test the robustness of the results.

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Table 2. 1. Descriptive Statistics

Country	<i>N</i>	Big 4 market share	Cash/ Total Assets	Cash/ Net Assets	Market-to-Book	Total Debt	Growth Opportunities	Size	Revenue
Argentina	361	62.88%	8.49%	9.83%	0.886	21.52%	12.38%	8,57	5,54
Brazil	2019	76.97%	9.59%	13.15%	1.058	27.64%	12.83%	54,91	28,90
Chile	442	90.50%	6.80%	7.77%	0.808	25.23%	6.19%	25,22	14,07
Colômbia	80	75.00%	5.30%	5.98%	0.666	17.51%	4.33%	23,78	13,86
México	764	89.92%	8.30%	9.73%	1.074	25.73%	6.67%	21,81	15,78
Peru	360	85.56%	4.77%	5.33%	0.705	24.09%	8.25%	8,95	6,25
Full Sample	4026	80.38%	8.43%	10.40%	0.979	25.95%	10.31%	31,30	16,16

Notes: Our sample consist of 494 Latin American public firms (4,026 firm-year observations) with data available from Argentina, Brazil, Chile, Colombia, Mexico, and Peru over the sample period of 2003-2018. We winsorized the continuous variables at the 1 and 99 percentiles. 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.

Table 2. 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
<i>Growth Opportunities</i> $_{i,t}$	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. 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	
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%.

Table 2. 3. 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	0.545 (***)	0.529 (***)	0.402 (***)	0.461 (***)	0.374 (***)	0.488 (***)	0.605 (***)	0.605 (***)	0.412 (***)
$E_{i,t}$	2.522 (***)	3.174 (***)	1.257 (***)	1.067 (*)	1.228 (*)	1.206	1.380 (***)	1.559 (***)	0.824
$dE_{i,t}$	-0.555 (***)	-0.851 (***)	-0.407 (**)	-0.960 (***)	-1.160 (**)	-0.853 (**)	0.147	-0.117	-0.046 (*)
$dE_{i,t+1}$	0.571 (***)	0.700 (***)	0.286	-0.437	-0.165	-0.425	0.557 (***)	0.549 (**)	0.415
$dNa_{i,t}$	0.048	0.101	0.008	-0.017	-0.076	0.046	0.187 (***)	0.265 (***)	0.049
$dNa_{i,t+1}$	0.062	0.061	0.048	0.101	0.025	0.151	0.046	0.058	0.010
<i>Growth Opportunities</i> $_{i,t}$	0.102 (***)	0.118 (***)	0.078	0.092	0.169	-0.074	0.112 (***)	0.127 (***)	0.111 (*)
$I_{i,t}$	-2.403 (***)	-2.266 (**)	-0.584	1.262	2.138	3.032	-2.204 (***)	-1.851 (**)	-0.953
$dI_{i,t}$	0.584 (*)	0.572	0.548	-2.943 (***)	-3.692 (***)	-2.374	0.566 (*)	0.300	0.634
$dI_{i,t+1}$	-0.597	-0.440	-0.266	-0.672	-0.246	0.314	-0.576	-0.769	-0.279
$D_{i,t}$	0.005 (***)	0.004 (***)	0.002	0.003 (*)	0.004 (**)	-0.002	7.038 (***)	8.137 (***)	2.087
$dD_{i,t}$	-0.001 (**)	-0.001 (**)	0.000	-0.000	-0.001	0.002	-2.324 (***)	-2.556 (***)	-1.310 (**)
$dD_{i,t+1}$	0.001 (***)	0.001 (**)	0.002	0.004 (***)	0.004 (***)	-0.001	1.688 (**)	2.237 (***)	0.798
$dV_{i,t+1}$	-28.108 (***)	-39.471 (***)	-20.179 (***)	-20.861 (***)	-25.973 (***)	-18.347 (***)	-66166.6 (***)	-104858 (***)	-23869.6 (***)
$dCash_{i,t}$	0.072	0.018	0.265	0.504	-0.034	1.579 (**)	0.186	0.200	0.307
$dCash_{i,t+1}$	-0.306 (**)	-0.400 (***)	0.009	0.432	0.178	1.078 (*)	-0.102	-0.147	0.047
GDP	0.012 (***)	0.013 (***)	0.005	-	-	-	-	-	-
Adjusted R ²	23.83	26.31	19.70%	27.55	25.10%	41.15%	35.07	39.32%	19.98%
P-Value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Highest VIF	1.744	1.908	1.665	2.126	2.073	2.409	2.486	2.806	1.948
Observations	4026	3236	790	361	227	134	2019	1554	465

Continued Table 2. 3. 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	
Constant	0.319 (***)	0.305 (***)	0.727 (***)	0.424 (***)	0.423 (***)	0.196	0.260 (***)	0.297 (***)	
$E_{i,t}$	1.717 (**)	1.587 (**)	3.144 (**)	5.309 (***)	5.583 (***)	5.167 (***)	0.988	0.215	
$dE_{i,t}$	0.013	0.369	0.664	-1.009	-0.593	-3.115 (**)	-0.106	0.151	
$dE_{i,t+1}$	0.465 (*)	0.760 (**)	1.506 (***)	1.951 (***)	1.923 (***)	0.511	0.514	0.239	
$dNA_{i,t}$	0.336 (***)	0.413 (***)	0.454 (***)	0.03	0.058	0.352 (*)	0.216	0.276	
$dNA_{i,t+1}$	0.261 (**)	0.275 (**)	0.319	-0.079	-0.059	-0.018	0.144	0.205 (*)	
<i>Growth Opportunities</i> $_{i,t}$	0.132 (*)	0.076	-0.506 (**)	-0.017	-0.022	0.008	0.096	0.063	
$I_{i,t}$	0.742	2.702	-23.512 (***)	-5.430 (**)	-6.076 (**)	0.681	0.996	4.218	
$dI_{i,t}$	-2.593	-2.646	9.758 (**)	1.024	1.198	-0.876	-2.592	-4.382	
$dI_{i,t+1}$	-2.788	-2.534	-9.870	-3.502 (*)	-4.373 (*)	2.048	-2.370	-1.986	
$D_{i,t}$	0.006 (***)	0.006 (***)	-0.004	0.006 (***)	0.006 (**)	0.000	0.004 (***)	0.003 (***)	
$dD_{i,t}$	-0.002	-0.001	-0.000	-0.001	-0.001 (*)	0.003 (**)	0.000	0.000	
$dD_{i,t+1}$	0.000	0.001	-0.008	0.001	0.001	0.002	0.003 (***)	0.003 (***)	
$dV_{i,t+1}$	-35.454 (***)	-53.842 (***)	-130.689 (***)	-128.921 (***)	-147.002 (***)	-5.651	-75.392 (***)	-93.115 (***)	
$dCash_{i,t}$	-0.077	-0.033	-1.549 (***)	-0.361	-0.403	-0.968	0.773 (**)	1.003 (***)	
$dCash_{i,t+1}$	-0.057	-0.021	-0.480	-0.977 (***)	-0.912 (**)	-1.086	0.502	0.648 (*)	
GDP	-	-	-	-	-	-	-	-	
Adjusted R ²	38.90%	41.10%	88.96	37.43	32.38%	48.11%	37.80%	37.09	
P-Value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Highest VIF	2.739	2.739	6.684	2.366	2.455	2.527	3.456	3.609	
Observations	442	400	80	764	687	77	360	308	

Notes: The dependent variable is the market value of firm (Tobin's Q), which is calculated as the ratio of the firm's market value to total 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%.

Table 2. 4. Fixed Effects Regression
Latin American Firms

Variables	Full Sample	Big 4	Non-Big 4
	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)	Coefficients (<i>p</i> -value)
Constant	0.590 (***)	0.579 (***)	0.516 (***)
$E_{i,t}$	1.712 (***)	2.145 (***)	0.925
$dE_{i,t}$	-1.128 (***)	-1.261 (***)	-0.955 (***)
$dE_{i,t+1}$	0.137	0.330	-0.421
$dNa_{i,t}$	-0.209 (***)	-0.222 (***)	-0.086
$dNa_{i,t+1}$	0.081 (*)	0.084	0.049
<i>Growth Opportunities</i> $_{i,t}$	0.037	0.042	0.016
$I_{i,t}$	3.204 (**)	3.583 (*)	3.898 (*)
$dI_{i,t}$	-1.195	-0.914	-2.142
$dI_{i,t+1}$	0.005	0.803	-0.361
$D_{i,t}$	0.004 (***)	0.004 (***)	0.003
$dD_{i,t}$	-0.001 (***)	-0.001 (***)	0.000
$dD_{i,t+1}$	0.001 (**)	0.001 (**)	0.002
$dV_{i,t+1}$	0.498 (***)	0.484 (***)	0.467 (***)
$dCash_{i,t}$	-0.499 (***)	-0.550 (***)	0.254
$dCash_{i,t+1}$	-0.253	-0.323	0.549
GDP	0.012 (***)	0.013 (***)	0.007
Adjusted R ²	31.20%	31.01%	33.89%
<i>P</i> -Value	0.000	0.000	0.000
Highest VIF	2.047	2.161	1.985
Observations	2007	1682	325

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%.

Table 2. 5. Heckman's (1979) two-step selection model

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	0.455 (***)	0.327 (***)	0.588 (***)	0.962 (***)	0.892 (***)	0.999 (***)	0.751 (***)	0.663 (***)	0.519 (***)
$E_{i,t}$	3.940 (***)	4.615 (***)	1.176 (**)	0.977	1.334	0.786	1.795 (***)	2.217 (***)	0.432
$dE_{i,t}$	-1.084 (***)	-1.337 (***)	-0.325	-1.419 (***)	-1.436 (*)	-1.518 (***)	0.083	-0.130	0.189
$dE_{i,t+1}$	1.101 (***)	1.118 (***)	0.524 (**)	-0.438	-0.087	-0.756	0.666 (***)	0.712 (*)	0.598 (**)
$dNa_{i,t}$	0.085	0.126	-0.095	-0.445 (***)	-0.455 (**)	-0.512 (*)	0.358 (***)	0.422 (***)	0.006
$dNa_{i,t+1}$	-0.019	-0.012	0.032	0.137	0.205	-0.035	-0.007	0.005	-0.006
<i>Growth Opportunities</i> $_{i,t}$	0.056	0.059	0.100 (*)	0.133	0.142	0.110	0.056	0.052	0.158 (**)
$I_{i,t}$	-0.202	0.233	-0.338	-2.865	-3.056	-1.568	0.56	0.802	0.778
$dI_{i,t}$	0.583	0.454	1.150	3.830 (*)	4.622	1.103	0.273	0.129	0.608
$dI_{i,t+1}$	1.081 (**)	1.603 (**)	0.568 (***)	1.216	3.503	-1.575	1.059 (**)	0.986 (*)	1.490 (*)
$D_{i,t}$	0.003 (*)	0.003 (*)	0.002	0.001	0.003	-0.003	10.613 (***)	10.231 (***)	4.935 (***)
$dD_{i,t}$	-0.002 (***)	-0.002 (***)	-0.001	-0.000	-0.001	-0.000	-3.836 (***)	-3.767 (***)	-1.826 (**)
$dD_{i,t+1}$	0.000	0.000	0.000 (***)	0.001	0.002	-0.001	3.028 (***)	2.602 (**)	2.562 (***)
$dV_{i,t+1}$	0.437 (***)	0.427 (***)	0.564	0.767 (***)	0.696 (***)	0.896 (***)	-59489.6 (***)	-93764.5 (***)	-21040.9 (**)
$dCash_{i,t}$	-0.081	-0.109	0.169	-0.714	-0.974	-0.662	0.219	0.231	0.334
$dCash_{i,t+1}$	-0.487 (***)	-0.630 (***)	-0.166	0.466	0.794	-0.212	-0.319 (*)	-0.437 (**)	0.081
GDP	0.005 (**)	0.007 (**)	0.003	-	-	-	-	-	-
$\lambda_{j,i}$	-0.421 (***)	-0.229 (*)	-0.401 (*)	-0.339	-0.345	-0.262	-0.395 (*)	-0.030	-0.052
Adjusted R ²	31.28%	34.45%	22.56%	25.62%	25.82%	33.08%	41.37%	43.72%	21.50%
P-Value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Highest VIF	4.173	4.166	4.595	2.118	2.081	2.389	2.627	2.961	2.025
Observations	4026	3236	790	361	227	134	2019	1554	465

Continued Table 2. 5. Heckman's (1979) two-step selection model

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	0.775 (***)	0.731 (***)	0.603 (*)	0.794 (***)	0.745 (***)	1.049 (***)	0.925 (***)	0.872 (***)	
$E_{i,t}$	1.935 (**)	2.260 (**)	3.194	3.744 (***)	3.854 (***)	2.862 (**)	0.766	0.606	
$dE_{i,t}$	-0.828 (*)	-1.159 (**)	-1.958 (*)	-2.001 (***)	-1.985 (***)	-0.688	-0.013 (*)	-0.037	
$dE_{i,t+1}$	0.887 (*)	0.852	1.901	0.792	0.556	2.284 (**)	1.182	1.098	
$dNA_{i,t}$	-0.010	0.027	-0.094	-0.259	-0.234	-0.574 (**)	0.117	0.165	
$dNA_{i,t+1}$	0.314	0.354 (*)	-0.346	0.046	0.084	-0.467 (*)	-0.230	-0.219	
<i>Growth Opportunities</i> $_{i,t}$	0.126	0.132	-0.319	-0.001	0.014	0.055	0.050	0.073	
$I_{i,t}$	1.566	2.527	4.852	-0.697	0.318	-3.261 (*)	-0.628	-0.224	
$dI_{i,t}$	-2.128	-4.472	4.817	3.352	2.833	1.764	-2.079	-3.045	
$dI_{i,t+1}$	-0.693	-1.472	6.17	2.379	3.465	0.759	-2.629	-3.215	
$D_{i,t}$	0.004 (***)	0.004 (**)	0.01	0.006 (***)	0.007 (***)	0.014 (***)	0.003 (*)	0.003	
$dD_{i,t}$	-0.001	-0.001	-0.002	-0.002 (***)	-0.002 (***)	-0.003	-0.000	-0.000	
$dD_{i,t+1}$	0.001	0.001	0.009	0.001	0.001	0.007 (***)	0.002 (**)	0.002 (*)	
$dV_{i,t+1}$	0.383 (**)	0.396 (**)	0.784 (***)	0.524 (***)	0.523 (***)	0.476 (***)	0.357 (***)	0.412 (***)	
$dCash_{i,t}$	-0.403	-0.144	-0.615	-1.443 (***)	-1.400 (***)	-1.005	1.674 (**)	2.115 (**)	
$dCash_{i,t+1}$	0.116	0.293	0.369	-1.109 (***)	-1.042 (**)	-0.697	1.032	1.443 (*)	
GDP	-	-	-	-	-	-	-	-	
$\lambda_{j,i}$	-0.572 (***)	-0.488 (**)	-0.828	-0.493 (**)	-0.391 (*)	-1.159 (***)	-1.047 (***)	-0.873 (***)	
Adjusted R ²	35.77%	34.06%	61.51%	47.72%	46.35%	67.70%	39.90%	35.90%	
P-Value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Highest VIF	2.763	2.765	6.424	2.61	2.707	3.125	3.805	4.015	
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, $((X_{t+1} - X_t) / Total Assets_t)$; $\lambda_{j,i}$ (Lambda) refer to the inverse Mills ratios independently calculated from unreported probit estimations 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; 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%.

Accounting Conservatism and Corporate Cash Levels: empirical evidence from Latin America

Abstract:

The aim of this research is to shed light on the role of accounting conservatism in the determination of cash levels. Previous literature suggest that conservatism is a governance mechanism that can alleviate agency problems associated with managers' investment decisions. Hence, we hypothesize in this article that greater conservatism limits managers' ability for abusing cash for their private benefits. Using a sample of Latin American firms from 2000-2018, we find results consistent with this expectation. We contribute to the international literature of conservatism, cash holdings and corporate governance by demonstrating the importance of conservatism in firm's decision of how cash is employed. Indeed, we find strong and robust evidence that firms under more conservative accounting have higher cash levels due to the reduction of cash misappropriation, *ceteris paribus*. By documenting that conservatism reduce agency problems related to cash management, we also provide practitioner implications for accounting standard-setters, given the ongoing debate about the merits of neutrality as opposed to conservatism as a desirable feature in financial reports. These results are robust to alternative measures of conservatism, after controlling for other factors associated with timely loss recognition and to a battery of robustness checks.

Keywords: Cash Holdings; Corporate Governance; Timely Loss Recognition.

1. INTRODUCTION

Previous literature document that cash holdings, despite providing benefits to firms in imperfect capital markets, can be detrimental to shareholders when the interests between managers and shareholders diverge (Myers & Rajan, 1998; Harford, 1999; Opler, Pinkowitz, Stulz, & Williamson, 1999; Pinkowitz, Williamson, & Stulz, 2007; Graham & Leary, 2018). Under the agency theory perspective, managers can use of his privileged position to maximize his utility function instead of serving the owner (Jensen & Meckling, 1976). The decision to hold and deploy cash holdings is at the discretion of managers with little scrutiny (Dittmar & Mahrt-Smith, 2007). Therefore, cash resources is especially at risk of being expropriated on negative net present value (NPV) projects or on opportunistic actions by entrenched managers (Myers & Rajan, 1998; Harford, 1999; Dittmar & Mahrt-Smith, 2007; Pinkowitz et al., 2007; Graham & Leary, 2018).

The convergence of interests, however, can be achieved through the use of corporate governance mechanisms. The evidence of Dittmar and Mahrt-Smith (2007), for instance, point out that corporations with weak governance structures dissipate cash quickly in ways that destroy operating performance. This negative effect on operating performance, on the other hand, is cancelled out if the company is well governed. In other words, the authors' evidence suggest that a well-governed company has its cash better "fenced in", while in a poorly-governed corporation cash are dissipated more quickly on less profitable investments. The findings of Harford, Mansi, & Maxwell, 2008 complements those of Dittmar and Mahrt-Smith (2007), since they document that firms with weaker governance structures, proxied by anti-takeover provisions, spend cash holdings more quickly on inefficient capital expenditures and acquisitions than those with better governance practices. Therefore, under weak governance context entrenched managers may have stronger incentive to distort cash holdings in a way to benefit themselves at the expense of minority shareholders.

Prior literature also suggest that conservatism is an important governance mechanism and a relevant characteristic of a firm's accounting system that may serve to reduce information asymmetry and thereby lessen the agency problems. The role of accounting conservatism as a governance mechanism is due its ability to mitigate agency problems related with managers' investments decisions (Watts, 2003; Ball & Shivakumar, 2005).

If managers know *ex ante* that losses will be recognize during their tenure, then they are less likely to invest in negative NPV investments. On the flip side, if managers can defer loss recognition to later periods, then the earnings consequences of their decisions can be

passed on to the subsequent managers. The ability of managers to defer loss recognition also provides them, especially those with short horizon, an accounting-based incentive to continue operating projects with *ex post* negative NPVs to avoid losses on sale or abandonment. These agency problems, in turn, can be mitigated by timely loss recognition, irrespectively of managers' decision to continue or abandon these projects (Ball & Shivakumar, 2005; García Lara, Osma, & Penalva, 2009; Francis & Martin, 2010).

Accounting conservatism thus provides shareholders with timely signals about the profitability of projects undertaken by managers, in a manner that, shareholders can take corrective actions in the face of the opportunistic behavior of managers in charge for these projects (Watts, 2003). Thus, the fear of job loss or damage to reputation can deter managers from taking negative NPV projects (Francis & Martin, 2010). Therefore, timely loss recognition increases managers' incentive to limit economic losses and, consequently increases the efficiency of contracting (Ball & Shivakumar, 2005).

Consequently, the implementation of more conservative accounting improves, at least in part, the existing agency conflicts and also increases firm and equity values (Watts, 2003; Ball & Shivakumar, 2005; LaFond & Watts, 2008; García Lara et al., 2009). Building on the insights of these researches, we extend them by shedding light on the role of accounting conservatism in the determination of cash levels. More specifically, we argue that accounting conservatism is a governance mechanism that serves to effectively limit managers' ability to expropriate cash for their own benefit.

Many researches have already analyzed the effects of corporate governance on cash levels (Dittmar, Mahrt-Smith, & Servaes, 2003; Harford et al., 2008; Huang, Elkinawy, & Jain, 2013; Manoel, Moraes, Nagano, & Sobreiro, 2018). However, only one prior research, Louis, Sun e Urcan (2012), analyze the effect of conservatism on the market value of cash. Using a sample of 101,221 firm-years observations from U.S. over the period of 1974-2006, Louis et al. (2012) find that the value of an additional dollar of cash increases in accounting conservatism. This result suggest that cash holdings is used more efficiently under conservative accounting.

Our research differs from Louis et al. (2012) in important ways. Although their study document the effect of conservatism on the market value of cash, no previous research has provided a detailed analysis on the role of accounting conservatism in determining cash levels. Furthermore, Roychowdhury (2010) argue for more studies about the conservatism's monitoring and governance benefits for stakeholders. Our article fills this gap in the literature. For that, we use a Latin America setting.

The determinants of accounting conservatism varies according to four factors: contracts, litigation, taxation and regulation (Watts, 2003). Therefore, by using only a sample of U.S. firms, the findings of Louis et al. (2012) about the market value of cash may not be generalizable to other jurisdictions. In addition, there are important differences between the Latin American market and the United States one.

First, beyond showing a lower level of development in its market, Latin American firms do not enjoy of strong investor protection like those from the U.S. market. In a context of low investor protection, managers can easily consume cash to pursue their personal interests over shareholders' interests. Moreover, poor investor protection, mostly associated with emerging markets, leads firms from these countries to face serious financial constraints, ponders Arslan, Florackis and Ozkan (2006). As a result, firms from emerging markets demand higher liquid assets. Hence, a possible advantage associated with policies of higher cash retention can be eroded if the governance mechanisms fail to align the interests of agent with those of the principal (Manoel et al., 2018). Third, the ownership is typically widely dispersed in the U.S. setting, while in Latin America the ownership structure tends to be concentrated.

These characteristics of the Latin American setting may have important implications with respect to companies' cash policies and in the variation of conservatism. In the light of these arguments, we enjoy this setting to determine the impact of accounting conservatism on cash levels. Our sample includes 4,640 firm-year observations with data available from five Latin American countries (Argentina, Brazil, Chile, Mexico, and Peru). The data is from the Thomson Reuters database and covers the time period from 2000 to 2018.

Since the proxies of accounting conservatism may substitute for each other, we use two measures of this construct in order to provide a more complete picture about their differential impact on cash levels. The first proxy of conservatism is based on Basu's measure (1997) and the second is the accrual-based model developed by Ball and Shivakumar (2005).

Our results are for the most part consistent with our predictions. In fact, we find strong and robust evidence that Latin American firms under more conservative accounting have higher cash holdings as a result of the reduction in cash misappropriation. These evidence thereby extends and complements the article of Louis et al. (2012) by demonstrating that accounting conservatism play an important role in determining corporate cash levels. Thus, our findings contribute to the international literature of accounting conservatism, cash management and governance by enhancing the understanding on the relationship between accounting conservatism, as a governance mechanism, and cash holdings.

Our findings on the relation between conservatism and cash holdings are particularly interesting because cash expropriation have a devastating impact on shareholders' welfare. Therefore, greater conservatism has the potential to bring real economic benefits to organizations, serving as an efficient mechanism that reduce agency costs over cash management by inducing a more efficient use of liquid assets. In view of this, we also adds to the literature by showing that accounting conservatism plays a relevant and beneficial role within accounting principles and practices. The results, thereby, may be of particular interest given the ongoing debate about the merits of neutrality of accounting numbers as opposed to conservatism as a desirable feature of accounting numbers.

Our results are robust to alternative estimations of accounting conservatism, to a battery of robustness checks and after controlling for other factors associated with timely loss recognition (size, leverage and growth opportunities). The remainder of this research is organized as follows. In Section 2 we develop the research hypothesis. Section 3 describes the data, the measures of accounting conservatism and the summary statistics. Section 4 contain the empirical results and the analysis. Finally, Section 5 is dedicated to our main conclusions.

2. HYPOTHESIS DEVELOPMENT

In a world of perfect financial capital markets, holding liquids assets are irrelevant, since that when necessary firms can raise funds to keep operations and to invest at zero cost (Opler et al., 1999). However, the assumptions of a perfect market can be considered as platonic abstractions (Manoel et al., 2018), given that transactions costs are never irrelevant and external funds cannot be considered a perfect substitute for internal funds (Myers & Majluf, 1984).

In imperfect capital markets, on the other hand, cash holdings provide benefits to firms (Harford, 1999). In the presence of asymmetric information, for example, is less costly for companies to use internally generated funds than raising external funds due to the transaction costs (Myers & Majluf, 1984; Kim, Mauer, & Sherman, 1998). In the same way, firms can hold precautionary cash to hedge for the risk of cash shortfalls (Keynes, 1936; Opler et al., 1999), especially in times of crises (Manoel, Moraes, Santos, & Neves, 2017; Manoel & Moraes, 2018). Furthermore, Myers and Majluf (1984) suggest that cash enable firms to take advantage of unexpected investment opportunities, which would be bypassed otherwise due to costly external financing.

In spite of the above benefits, prior literature also notes that cash have a dark side (Myers & Rajan, 1998). First, there is an opportunity cost to holding cash because they provide

a low rate of return relative to more productive but less liquid assets (Kim et al., 1998; Opler et al., 1999; Huang et al., 2013; Graham & Leary, 2018). Second, due to tax disadvantages (Opler et al., 1999). Third, due to agency costs of free cash flow hypothesis (Jensen, 1986). Cash is like free cash flow and can be considered the asset most likely to be expropriated¹ by entrenched managers. Therefore, if the incentives of agent are not aligned with those of principal, then managers can use liquidity to increase their private benefits at the expense of shareholders wealth (Myers & Rajan, 1998; Harford, 1999; Opler et al., 1999; Pinkowitz et al., 2007; Graham & Leary, 2018). Finally, firms with higher cash-to-assets ratios are generally more affected by agency costs of free cash flow hypothesis described in Jensen (1986).

This tradeoff between the positive and negative effects of cash holdings, which Opler et al. (1999:13) termed as a “double edged sword”, has important implications for firm’s cash levels (Kim et al., 1998; Huang et al., 2013). A possible benefit associated with higher cash levels, however, can be eroded if managers use liquid assets inefficiently. In this sense, stronger governance mechanisms is essential for preventing entrenched managers from destroying firm value (Dittmar & Mahrt-Smith, 2007).

The conflicts of interest between agent and principal are referred in the literature as agency problems (Jensen & Meckling, 1976). The evidence of Dittmar et al. (2003) point out that the agency conflicts are of primary importance in determining cash levels. The governance mechanisms arise to mitigate the agency problems and to protect the interests of stakeholders. In a further research, Dittmar and Mahrt-Smith (2007) obtained evidence that governance improve the use of cash by improving the return from operations. Therefore, corporate governance is the shareholders’ defense against the inefficient use of resources by entrenched managers.

Prior literature treat accounting conservatism as a governance mechanism, which restricts managerial incentives and managers’ ability to exaggerate the accounting numbers used in contracts (Watts, 2003; Ball & Shivakumar, 2005; Francis & Martin, 2010; Ahmed & Duellman, 2011). When the interests between managers and shareholders diverge, self-interested managers can take on negative NPV investments that somehow brings him benefits at the expense of the rest of the stakeholders. Likewise, managers can also have incentives to continue operating unprofitable investments until they are no longer with the firm largely because of the private benefits they consume from these projects (Ball & Shivakumar, 2005). The conflicts of interest may be even greater for those managers with a short horizon, as a means to increase their compensation (Chen, Ni, & Zhang, 2018). In the absence of timely loss

recognition, thereby, managers are better able to avoid projects abandonment by spreading “small” annual losses from unprofitable projects over time (Francis & Martin, 2010).

Accounting conservatism, however, reduces *ex ante* the incentives of managers to take on negative NPV projects, given that they know that losses from poorly performing projects will be recognize during their tenure. In contrast, if managers can defer loss recognition to later periods by using aggressive accounting, then they will have incentives to accept negative NPV projects because the earnings consequences of their decisions can be passed on to the later generations of managers (Ball & Shivakumar, 2005; Francis & Martin, 2010). In the same way, conservatism also improve *ex post* monitoring of managers’ investment decisions because timely loss recognition makes managers less likely to continue operating poorly performing projects (Ball & Shivakumar, 2005).

Thus, accounting conservatism provides incentives for *ex ante* efficient investment decisions and also facilitates *ex post* monitoring of managers’ investment by stakeholders, thereby increasing corporate governance. Therefore, under more conservative accounting shareholders are better able to detect inappropriate behaviors by self-interested managers (Watts, 2003; Ball & Shivakumar, 2005; García Lara et al., 2009; Ahmed & Duellman, 2011).

According to Dittmar and Mahrt-Smith (2007), governance mechanisms have a greater influence on the use of liquid assets (operating and investment decisions) and a minor impact on the financial decisions of how companies accumulate cash (Dittmar & Mahrt-Smith, 2007). Ball and Shivakumar (2005), in turn, document that the governance effect of timely loss recognition is due to its ability to mitigate agency costs associated with managerial investment decisions.

Given the previously reviewed evidence, we posit in this research that accounting conservatism are a relevant factor in determining the cash levels. More specifically, we hypothesize that conservatism, as a part of firm’s governance structure, constrains the opportunistic behavior over cash management, especially those related to their investment decisions (Watts, 2003; Ball & Shivakumar, 2005; Francis & Martin, 2010).

Based on the above arguments, our research hypothesis is:

***Ceteris paribus*, Latin American firms that use more conservative accounting have higher cash levels than those companies that use less conservative accounting.**

3. RESEARCH METHODOLOGY

3.1. The sample

Our initial sample consist of firm-year observations from Latin American countries (Argentina, Brazil, Chile, Mexico, and Peru) with data available for the period of 2000-2018. We allow companies to exit and reenter in our data set at any time in the sample period to mitigate any survivorship bias. The consolidated financial statements were obtained from the Thomson Reuters database. To ensure that our inferences are not driven by extreme values and possible data errors, we winsorized all the continuous variables at the 1st and 99th percentiles of their distributions (Dittmar & Mahrt-Smith, 2007; Louis et al., 2012). To estimate our unbalanced panel data, we use Ordinary Least Squares (OLS) regressions.

Following empirical literature on the theme, we exclude from the sample financial and utilities firms because they are affected by statutory capital requirements and other government regulations (Opler et al., 1999). After applying these selection criteria, the remaining sample consist of an unbalanced panel data comprising 412 Latin American public firms (4,640 firm-year observations); which consist of 345 observations from Argentina, 1,401 observations from Brazil and Chile, 798 from Mexico and 695 from Peru.

3.2. Measures of Accounting Conservatism

Conservatism is an important attribute of financial reporting quality for at least five centuries (Basu, 1997; Ball & Shivakumar, 2005). Basu (1997:4) interprets accounting conservatism as “the accountant’s tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses”. This definition is consistent with the adage “anticipate no profits by anticipate all losses” (Ball, Kothari, & Nikolaev, 2013:1072). More recently, Ball and Shivakumar (2005) complement the understanding of this construct by classifying it in unconditional and conditional conservatism. First, Ball and Shivakumar (2005) mention that the definition proposed by Basu (1997) represents the conditional conservatism.

Thus, the conditional conservatism, also called as *ex post* or earnings conservatism, refers to the asymmetric verifiability requirements for the recognition of economic gains versus losses (Basu, 1997). The larger the asymmetric verifiability, the larger is the understatement of net assets (LaFond & Watts, 2008). As an example of conditional conservatism, we mention the lower of cost or market accounting for inventory and impairment for tangible and intangible assets (Beaver & Ryan, 2005).

Unconditional conservatism, on the other hand, is the tendency to underestimate the book value of net assets or overestimate liabilities, regardless of the economic result. In other words, unconditional conservatism, also called as *ex ante* or balance sheet conservatism, refers to the timely recognition of losses independent of the news. Examples of unconditional conservatism include, for example, the adoption of accelerated depreciation methods (Beaver & Ryan, 2005). The main difference between the two forms of conservatism, conditional and unconditional, is that the application of the first one depends on economic news, while the unconditional is not a function of new information (Ball & Shivakumar, 2005; Beaver & Ryan, 2005).

We use in this research two proxies for accounting conservatism. The first one is the most used in the accounting literature (Khan & Watts, 2009; Ahmed & Duellman, 2011) and is based on Basu's (1997) measure. From the perspective of Basu (1997), it can be said that accounting conservatism is the accountants' tendency to demand a greater degree of verification to recognize the positive perspectives (Good News) when compared with the recognition of losses (Bad News). Stated differently, earnings capture bad news faster than good news under conservative accounting due to the asymmetric verification of losses and gains. Given the more timely recognition of bad news than good news in earnings (asymmetric timeliness), Basu (1997) expect to find a higher association of earnings with negative than with positive returns.

The base line equation of the author is:

$$NI_{it} = \beta_0 + \beta_1 NEG_{it} + \beta_2 RET_{it} + \beta_3 NEG_{it} \times RET_{it} + \epsilon \quad (1)$$

Where NI is earnings per share before extraordinary items; NEG is a dummy variable that equals one in the case of bad news and 0 otherwise; RET is the stock rate of return of the firm over the 12 months beginning nine months prior to the end of fiscal year; ϵ is the error term. In this regression, β_2 is the asymmetric timeliness coefficient and the proxy of news. This coefficient is expected to be positive in the presence of conditional conservatism and zero otherwise because conditionally conservative accounting incorporates negative economic income into accounting income faster than it incorporates positive economic income (Basu, 1997; Ball et al., 2013).

To analyze the role of accounting conservatism in the determination of cash levels, we expand the model (1) by including the logarithm of cash to net assets and interact it with the three terms in the baseline Basu (1997) model. Net assets are computed as total assets less cash

and cash equivalents. We also include GDP growth (defined as the annual percentage growth rate of each country GDP), to control the effects of economic policy uncertainty and macroeconomic conditions on firms' cash holdings (Graham & Leary, 2018). Finally, we also include country dummies² to control for cross-country differences (Dittmar & Mahrt-Smith, 2007). Thus, we estimate the following model:

$$NI_{it} = \beta_0 + \beta_1 NEG_{it} + \beta_2 RET_{it} + \beta_3 NEG_{it} * RET_{it} + \beta_4 Cash_{it} + \beta_5 Cash_{it} \times NEG_{it} + \beta_6 Cash_{it} \times RET_{it} + \beta_7 Cash_{it} \times NEG_{it} \times RET_{it} + \epsilon \quad (2)$$

The main variable of interest for our hypothesis is the coefficient β_7 , which reflects the relationship between cash holdings and accounting conservatism. Based on our hypothesis, we predict β_7 to be positive. If this coefficient were significantly positive, then it would indicate a positive association among cash levels and accounting conservatism. Alternatively, if this coefficient is not significant, then there will be no positive relationship between cash and conservatism, leading to the rejection of the hypothesis.

According to Ball et al. (2013), the Basu's (1997) approach provides econometrically valid estimates of conditional conservatism. The literature recognize, however, that this proxy also suffers from measurement errors (Ball & Shivakumar, 2005; Givoly, Hayn, & Natarajan, 2007). In this regard, we also use an alternative measure of accounting conservatism to validate the robustness of our inferences drawn with the measure developed by Basu (1997).

The second proxy of conservatism is based on the approach of Ball and Shivakumar (2005), in which regressions based on accruals and cash flows are used. By not relying on market measures, this approach reduces the risk of drawing incorrect inferences due to market imperfections. The timely recognition of losses in relation to profits also creates an asymmetry in accruals. In this sense, Ball and Shivakumar (2005) state that the negative association between earnings and operating cash flows is less pronounced in bad news periods due to the asymmetric verification requirements in the recognition of good and bad news in earnings. Accordingly, it is probable that economic losses will be recognized in a timely manner in unrealized accruals, while gains, in turn, will be recognized when realized on a cash basis.

The Model (3) corresponds to the Ball and Shivakumar (2005) model:

$$ACCR_{it} = \beta_0 + \beta_1 DCFO_{it} + \beta_2 CFO_{it} + \beta_3 CFO_{it} \times DCFO_{it} + \epsilon \quad (3)$$

Where, *ACCR* is the total accruals, computed as net income before extraordinary items minus cash flow from operations; *FCO* is the cash flow from operations; Both *Accr* and *CFO* are scaled by total assets; *DCFO* is a dummy variable that equals one if *CFO* is negative, and 0 otherwise; ϵ is the error term. We expect the coefficient β_2 to be negative, demonstrating a negative association between accruals and operating cash flow. The coefficient β_3 , in turn, is the measure of timely loss recognition and is expected to be positive in the presence of conditional conservatism under the hypothesis that accrued losses are more likely in periods of negative cash flows.

As in the Basu's model, we also add cash levels and interact it with the other variables in the standard Ball and Shivakumar (2005) model, as shown in Equation (4):

$$ACCR_{it} = \beta_0 + \beta_1 DCFO_{it} + \beta_2 CFO_{it} + \beta_3 CFO_{it} \times DCFO_{it} + \beta_4 Cash_{it} + \beta_5 Cash_{it} \times DCFO_{it} + \beta_6 Cash_{it} \times CFO_{it} + \beta_7 Cash_{it} \times CFO_{it} \times DCFO_{it} + \epsilon \quad (4)$$

The relation between cash levels and conditional conservatism is captured with the coefficient β_7 . Once again, if this coefficient were positive and statistically significant, then it would suggest a positive relationship between cash levels and accounting conservatism. According with our hypothesis, we predict this coefficient to be positive.

3.3. Descriptive statistics

In Table 1 we present the summary statistics of the variables used in our empirical analyses, and for some additional variables: size, leverage and growth opportunities. The statistics are presented for the full sample (Panel B) and for each country (Panel A).

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The results indicate that Latin American firms hold, on average, 11.02% of their assets in the form of cash and cash equivalents with a standard deviation of 0.105. The value of the standard deviation indicates that the companies exhibit reasonable variation in cash levels. Brazilian firms have an average level of 16.16%, the highest among our sample. Brazil is followed by Argentina and Mexico with a cash ratio of 10.62% and 9.68%, respectively. Table 1 also show that cash represents 8.09% of total assets in Chile and 8.31% in Peru. These initial

findings regarding the average cash levels in Latin America suggest that in a context of poor investor protection, firms from this region, with the exception of Brazil, hold lower cash levels when compared, for example, with the evidence obtained by Opler et al. (1999) with a mean ratio of 17%.

Furthermore, we find that Brazil have the highest mean of leverage with 33.43% and Argentina the lowest ratio of 18.96%. The mean of leverage is about 25.85% of net assets. The average value of sales growth is 9.38% for the full sample. In addition, México has the highest size, while Peru has the lowest. The average value of the dummy for negative returns is 0.3707, which indicates that 37.07% of the sample have negative stock return. Finally, the descriptive statistics also show that the fraction of observations with negative cash flows is 5.22%

4. RESULTS

Table 2 contains the pooled OLS estimates of the regressions described in Equations 2 and 4 using two different proxies of accounting conservatism. For the sake of brevity, we do not report the coefficients on the country dummies. Our hypothesis predicts the coefficients β_7 of each equation to be positive, which would suggest a positive association between accounting conservatism and cash levels.

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Table 2 shows that, under the Basu (1997) model, the coefficient on $Cash \times NEG \times RET$ is significantly positive at the 1% level. Consistent with our hypothesis, the coefficient on $Cash * CFO * DCFD$ under the Ball and Shivakumar (2005) model is also significantly positive at the 1% level, indicating that firms that use more conservative financial reporting maintain higher cash levels. The adjusted R^2 is

Timely loss recognition make entrenched managers less likely to take on projects that they expect *ex ante* to be negative, and also less likely to continue operating investments with *ex post* negative cash flows (Ball & Shivakumar, 2005; García Lara et al., 2009; Francis & Martin, 2010). Prior literature then document that the implementation of more conservative accounting choices reduces part of the agency problems (Watts, 2003; Ball & Shivakumar, 2005; LaFond & Watts, 2008; García Lara et al., 2009).

Therefore, the results reported in Table 2 provide support to our hypothesis and to the importance of accounting conservatism as a part of firm's governance structure, implying that conservatism serves to effectively limit managers' ability to expropriate cash for their private benefits. As a result of the reduction of cash improper diversion, we verify that companies under more conservatism accounting have higher cash levels, other things equal. As explained by Dittmar and Mahrt-Smith (2007), governance has a greater influence on the use rather than in the decision to accumulate cash. Thus, in this research we document that the reduction in agency problems obtained under more conservative accounting plays a relevant role in the firm's decision of how liquid assets is employed.

Using a large sample of U.S. firms over the period of 1974-2006, Louis et al. (2012) find that the value of an additional dollar of cash increases in accounting conservatism. In this sense, our results extend and complement the findings of the authors by demonstrating the importance of accounting conservatism in determining cash levels. More precisely, our findings indicate that conservatism is positively related with cash holdings in Latin America. The results holds for the two conservatism measures.

4.1. Robustness checks

The results outlined in the previous section indicate that companies with more conservative accounting have higher cash levels. In order to provide additional support to our findings, we perform a battery of robustness checks in this subsection. First, we use the natural logarithm of the ratio of cash and cash equivalents to sales as an alternative measure of cash levels instead of the log of cash to net assets, as in Harford et al. (2008) and Huang et al. (2013). The results of the pooled OLS estimations of models 2 and 4 with a new measure of cash levels are presented in Table 3.

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The results reported in Table 3 suggest that our main findings are robust to the inclusion of an alternative measure of cash. Hence, both measure of cash balances yield similar results that support our hypothesis.

As a second robustness check, we remove from our sample the Latin American companies cross-listed on the U.S. exchanges (492 observations). Huang et al. (2013) document in their research that firms cross-listed as American Depository Receipts (ADR) in the U.S. markets have significantly higher cash levels relative to their domestic peers. The author attribute the increase in the cash levels of cross-listed firms due to the degree of improvement in investor protection and to the reduction in agency problems resulting from cross-listing in the U.S. markets. Nevertheless, their evidence still suggest that the bonding effect of cross-listing is more pronounced for companies from emerging economies.

In this sense, we re-run Equations 2 and 4 without Latin American firms cross-listed on U.S. stock exchanges. The results are presented in Table 4.

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As observed in Table 4, the main results remain unchanged, suggesting that our findings are robust to the removal of the bonding effect of cross-listing in the U.S. markets.

The theory of accounting conservatism in Watts (2003) indicate that conservatism varies with four factors: contracts, litigation, taxation and regulation. Failing to control for these factors may result in finding association between accounting conservatism and cash where there is no association. Thus, as a third robustness test we also include Size (logarithm of net assets), Leverage (total debt scaled to net assets) and Sales Growth (the annual percentage change in firm's sales) along with their interaction with *CFO*, *DCFO* and *CF * DCFO* and with *NEG*, *RET* and *NEG * RET* as additional control variables in the models of Basu (1997) and Ball and Shivakumar (2005), respectively.

We include these variables because Khan and Watts (2009) indicate that they are relevant in determining conservatism. We opt for use the yearly growth rate of a firm's sales as an alternative proxy for growth opportunities instead of the market-to-book ratio as in Khan and Watts (2009), because we have more information available about this measure and also because the market-to-book ratio is a proxy that capture other constructs, like overvaluation and unconditional conservatism (Louis et al., 2012). Equations 2 and 4 are thus re-estimated with these three additional control variables. Table 5 reports the OLS results of Models 2 and 4 controlling for firm size, leverage and growth opportunities.

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The new findings displayed in Table 5 indicate that the coefficients β_7 of each equation are positive and statistically significant. Therefore, our findings are also robust to controlling for three important factors that affect timely loss recognition. With respect to control variables, Table 5 shows that the coefficients $Size \times NEG \times RET$ and $Size \times CFO \times DCFO$ are significantly negative as suggested by Khan and Watts (2009), thus indicating that larger companies have higher good news timeliness. The other coefficients of the three interactions, although only statistically significant in the Basu model (1997), are also in the predicted directions by Khan and Watts (2009). Nevertheless, when we control for size, leverage and growth opportunities the explanatory power increases to 6.93% and 49.87%, respectively.

Together, the results presented in this subsection provide additional evidence to our hypothesis. That is, conservatism constraints the opportunistic actions of self-interested managers over cash management, in a manner that, companies under more conservatism accounting have higher cash levels, *ceteris paribus*. These evidence are consistent with accounting conservatism alleviating agency costs, especially those related to cash holdings.

4.2. Controlling for corporate governance

In sequence, we examine whether corporate governance are influencing our results. The findings of García Lara et al., (2009), for example, suggest that governance employs conservatism as a mechanism to fulfill its monitoring role. Stated differently, their evidence indicates that the implementation of stringent corporate governance provisions results in increased conditional conservatism. Francis and Martin (2010) reached similar conclusions by verifying that governance mechanisms facilitate the implementation of conservatism and ensure their continuity over time. Moreover, García Lara et al. (2009) also state that governance and conservatism may be simultaneously determined. Therefore, it is possible that our findings reflect the combined effect of accounting conservatism with other governance mechanisms (Francis & Martin, 2010). Consequently, we cannot rule out the possibility that other governance mechanisms may affect our inferences.

We did not control for other governance mechanisms in our main analyzes because requiring data on governance substantially reduces the sample size. In this sense, to ensure that

our results are robust to controlling for other corporate governance mechanisms, in this subsection we expand the Basu (1997) and the Ball and Shivakumar (2005) models with a measure of governance. For that, we use the variable Management Score developed by Thomson Reuters as a proxy. We obtain the Management Score from the Thomson Reuters' Datastream for each firm in each sample year.

According to Thomson Reuters (2019), this governance score measures a firm's commitment and effectiveness towards following best practice corporate governance principles. The Management Score is calculated using percentile rank scoring and ranges from 0 to 100. A lower score indicates weak governance, while a higher score indicates stronger governance. Thus, we add this governance measure and interact it with the other variables of Models 2 and 4. Table 6 presents the new results.

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When using this proxy for corporate governance, our sample falls to 784 observations. Despite an over 80% drop in sample size, the coefficient β_7 $Cash \times CFO \times DCFO$ is positive and significant. The statistical significance and the direction of the coefficients for the other variables are also consistent with those presented in Table 2. Therefore, our main findings that accounting conservatism are of primary importance in determining cash levels and indeed mitigates agency conflicts over cash management holds after controlling for governance in the model of Ball and Shivakumar (2005).

On the other hand, the coefficient of the three interactions ($Cash \times NEG \times RET$) is insignificant in the Basu's (1997) framework. These new evidence suggest that we cannot rule out the alternative explanation that other governance mechanisms are affecting our inferences. The lack of significance is potentially due to the small sample size. We recognize, however, that a limitation of our research is that we are unable to completely control for endogeneity related to accounting conservatism and other governance mechanisms. Unfortunately, data limitations do not allow us to use an alternative measure of governance. Therefore, the new evidence obtained in the Basu's (1997) model should be taken with caution given the limited sample size of firms with governance data available.

5. CONCLUDING REMARKS

Previous literature suggest that accounting conservatism is a governance mechanism that can mitigate agency costs associated with managerial investment decisions. Thus, we posit in this research that conservatism is a relevant factor in determining the cash levels. More specifically, we expect that under conservative accounting managers have a lower chance to expropriate cash for their private benefits at the expense of shareholders. As a consequence of the reduction of cash misappropriation, we hypothesize that companies that use more conservative financial reporting have higher cash levels. We tested this hypothesis using a sample of Latin American public companies with data available (4,640 observations) from 2000 to 2018 from Thomson Reuters database.

Consistent with our predictions, we obtained evidence that accounting conservatism are of primary importance in determining cash levels. Indeed, we find strong and robust evidence that companies with greater conservatism have higher cash levels. Therefore, we provide evidence consistent with the role played by accounting conservatism, as part of a firm's governance structure, which reduce agency costs and improve the use of cash holdings. Thus, our findings have important implications for the international literature about accounting conservatism, corporate governance and cash by demonstrating that accounting conservatism mitigates the value destruction associated with cash holdings.

To ensure the robustness of the results, we use two alternative measures of accounting conservatism. The first is market-based (Basu, 1997) and the other is accruals-based (Ball & Shivakumar, 2005). We obtain consistent results using these distinct measures of accounting conservatism. Hence, our inferences are not affected by the method used to measure conservatism. Furthermore, we also conduct robustness checks that support our main findings. Nevertheless, our results are also robust after controlling for three important factors associated with conservatism: size, leverage and growth opportunities. Controlling for these three factors related with timely loss recognition generate a strong test of our predictions.

Our research are also subject to limitations. As outlined throughout the article, the set of governance mechanisms play a relevant role in the implementation of accounting conservatism (García Lara et al. 2009). We control for governance using the Management Score, a governance score developed by Thomson Reuters. We recognize, however, that endogeneity are a major concern because conservatism and governance can be jointly determined. Hence, we cannot completely rule out that other governance features, for which we have only one measure available, might affect our inferences. We also recognize that our

study is limited to the proxies' ability to capture the construct accounting conservatism, given that both can entail some measurement error.

¹ Expropriation of cash holdings can take a variety of forms, such as the consumption of perquisites, excessive salaries, investment projects that do not maximize shareholders' profits or even by theft (Jensen & Meckling, 1976; Opler et al., 1999; Dittmar et al., 2003).

² Untabulated analysis also indicate that our results are robust to the removal of country dummies. Moreover, unreported results also suggest that our main findings are robust when we include industry dummies to control for industry specific factors. Firms are grouped into industries based on the Thomson Reuters Business Classification (TRBC).

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Table 3. 1. Descriptive Statistics

Panel A											
Country	Observations	Cash/Total Assets	NI	NEG	RET	ACCR	CFO	DCFO	Size	Leverage	Sales Growth
Argentina	345	0.1062	0.2710	0.2696	41.7462	-0.0786	0.1296	0.0406	19.4773	0.1896	0.1075
Brazil	1401	0.1616	0.5329	0.3512	25.7592	-0.0289	0.1548	0.0742	20.7028	0.3343	0.0971
Chile	1401	0.0809	0.5997	0.3269	18.2636	-0.0902	0.1211	0.0635	19.6826	0.2398	0.0836
México	798	0.0968	0.1357	0.4774	4.0649	-0.0140	0.1479	0.0326	21.2194	0.2417	0.0856
Peru	695	0.0831	0.5827	0.4259	11.7477	-0.0970	0.2197	0.0129	19.4032	0.1967	0.1101
Total	4640	0.1102	0.4727	0.3707	18.8549	-0.0588	0.1513	0.0522	20.1978	0.2585	0.0938
Panel B											
Variables	Mean	Standard Deviation	Q1	Median	Q3						
Cash/Total Assets	0.1102	0.1056	0.0362	0.0809	0.1494						
NI	0.4727	1.9300	0.0199	0.0998	0.3282						
NEG	0.3707	0.4830	0.0000	0.0000	1.0000						
RET	18.8549	49.8897	-9.4148	7.6251	35.0706						
ACCR	-0.0588	0.1133	-0.0537	-0.0170	-0.0051						
CFO	0.0522	0.2224	0.0000	0.0000	0.0000						
DCFO	0.1513	0.1338	0.0702	0.1260	0.2006						
Size	20.1978	1.8079	18.9633	20.1845	21.3511						
Leverage	0.2585	0.1868	0.1084	0.2488	0.3713						
Sales Growth	0.0938	0.2653	-0.0607	0.0672	0.2139						

Notes: Table 1 reports the descriptive statistics of our Latin American sample. The sample includes all non-financial firms from Argentina, Brazil, Chile, Mexico and Peru with data available in Thomson Reuters database and covers the years from 2000 to 2018. The sample consist of 4,640 firm-year observations. Cash/Total Assets is the ratio of cash and cash equivalents divided by total assets; *NI* is earnings per share before extraordinary items; *NEG* is a dummy variable that equals one in the case of bad news and 0 otherwise; *RET* is the stock rate of return of the firm over the 12 months beginning nine months prior to the end of fiscal year; *ACCR* is the total accruals, computed as net income before extraordinary items minus cash flow from operations, scaled by total assets; *CFO* is the cash flow from operations scaled by total assets; *DCFO* is a dummy variable that equals one if *CFO* is negative, and 0 otherwise; *Size* is the sum of total assets (in millions of US dollars); *Size* is the natural logarithm of net assets (total assets net of cash and cash equivalents); *Leverage* is the ratio of total debt to net assets; *Sales Growth* is the annual percentage change in firm's sales.

Table 3. 2. OLS estimates of Models 2 and 4

Variable	Basu (1997) Model		Variable	Ball and Shivakumar (2005) Model	
	Coefficient	<i>p</i> -Value		Coefficient	<i>p</i> -Value
Constant	1.301	0.000 ***	Constant	-0.011	0.171
NEG	-0.004	0.983	DCFO	0.006	0.822
RET	-0.004	0.013 **	CFO	-0.321	0.000 ***
NEG*RET	0.024	0.000 ***	CFO*DCFO	1.271	0.001 ***
Cash	0.282	0.000 ***	Cash	0.028	0.000 ***
Cash*NEG	0.002	0.969	Cash*DCFO	0.002	0.823
Cash*RET	-0.001	0.072 *	Cash*CFO	-0.134	0.000 ***
Cash*NEG*RET	0.007	0.004 ***	Cash*CFO*DCFO	0.417	0.017 **
GDP	0.038	0.000 ***	GDP	-0.000	0.388
Observations	4,640		Observations	4,640	
Adjusted R ²	0.0292		Adjusted R ²	0.1308	
Country Effects	Yes		Country Effects	Yes	

Notes: Table 2 reports the pooled OLS estimates of models 2 and 4; *NI* is the dependent variable of Basu's (1997) model and was computed as earnings per share before extraordinary items; *NEG* is a dummy variable that equals one in the case of bad news and 0 otherwise; *RET* is the stock rate of return of the firm over the 12 months beginning nine months prior to the end of fiscal year; *ACCR* (Total Accruals) is the dependent variable of the model of Ball and Shivakumar (2005) and was computed as net income before extraordinary items minus cash flow from operations, scaled by total assets; *FCO* is the cash flow from operations scaled by total assets; *DCFO* is a dummy variable that equals one if *CFO* is negative, and 0 otherwise; *Cash* is the natural logarithm of the ratio of cash and cash equivalents to net assets, where net assets was obtained by subtracting cash and cash equivalents from total assets; *GDP* was computed as the annual percentage growth rate of each country *GDP*; *, **, *** indicate the significance levels at 10%, 5% and 1% respectively. For simplicity, the coefficients for the country effects dummies are omitted.

Table 3. 3. OLS estimates of Models 2 and 4

Variable	Basu (1997) Model		Variable	Ball and Shivakumar (2005) Model	
	Coefficient	<i>p</i> -Value		Coefficient	<i>p</i> -Value
Constant	1.125	0.000 ***	Constant	-0.033	0.000 ***
NEG	0.068	0.717	DCFO	-0.016	0.512
RET	-0.004	0.007 ***	CFO	-0.147	0.000 ***
NEG*RET	0.025	0.000 ***	CFO*DCFO	0.963	0.002 ***
Cash	0.257	0.000 ***	Cash	0.019	0.000 ***
Cash*NEG	0.032	0.652	Cash*DCFO	-0.002	0.836
Cash*RET	-0.001	0.035 **	Cash*CFO	-0.048	0.000 ***
Cash*NEG*RET	0.008	0.001 ***	Cash*CFO*DCFO	0.315	0.071 *
GDP	0.04	0.000 ***	GDP	-0.000	0.504
Observations	4,640		Observations	4,640	
Adjusted R ²	0.0260		Adjusted R ²	0.1125	
Country Effects	Yes		Country Effects	Yes	

Notes: Table 3 reports the pooled OLS estimates of models 2 and 4; *NI* is the dependent variable of Basu's (1997) model and was computed as earnings per share before extraordinary items; *NEG* is a dummy variable that equals one in the case of bad news and 0 otherwise; *RET* is the stock rate of return of the firm over the 12 months beginning nine months prior to the end of fiscal year; *ACCR* (Total Accruals) is the dependent variable of the model of Ball and Shivakumar (2005) and was computed as net income before extraordinary items minus cash flow from operations, scaled by total assets; *FCO* is the cash flow from operations scaled by total assets; *DCFO* is a dummy variable that equals one if *CFO* is negative, and 0 otherwise; *Cash* is the natural logarithm of the ratio of cash and cash equivalents to total sales; *GDP* was computed as the annual percentage growth rate of each country *GDP*; *, **, *** indicate the significance levels at 10%, 5% and 1% respectively. For simplicity, the coefficients for the country effects dummies are omitted.

Table 3. 4. OLS estimates of Models 2 and 4

Variable	Basu (1997) Model		Variable	Ball and Shivakumar (2005) Model	
	Coefficient	p-Value		Coefficient	p-Value
Constant	1.397	0.000 ***	Constant	-0.013	0.142
NEG	0.027	0.784	DCFO	0.005	0.844
RET	-0.003	0.021 **	CFO	-0.324	0.000 ***
NEG*RET	0.027	0.000 ***	CFO*DCFO	1.232	0.003 ***
Cash	0.305	0.000 ***	Cash	0.027	0.000 ***
Cash*NEG	0.273	0.577	Cash*DCFO	0.002	0.816
Cash*RET	-0.001	0.065 *	Cash*CFO	-0.13	0.000 ***
Cash*NEG*RET	0.007	0.000 ***	Cash*CFO*DCFO	0.392	0.032 **
GDP	0.033	0.002 ***	GDP	0	0.429
Observations	4,148		Observations	4,148	
Adjusted R ²	0.0320		Adjusted R ²	0.1245	
Country Effects	Yes		Country Effects	Yes	

Notes: Table 4 reports the pooled OLS estimates of models 2 and 4 without Latin American firms cross-listed on U.S. stock exchanges; *NI* is the dependent variable of Basu's (1997) model and was computed as earnings per share before extraordinary items; *NEG* is a dummy variable that equals one in the case of bad news and 0 otherwise; *RET* is the stock rate of return of the firm over the 12 months beginning nine months prior to the end of fiscal year; *ACCR* (Total Accruals) is the dependent variable of the model of Ball and Shivakumar (2005) and was computed as net income before extraordinary items minus cash flow from operations, scaled by total assets; *FCO* is the cash flow from operations scaled by total assets; *DCFO* is a dummy variable that equals one if *CFO* is negative, and 0 otherwise; *Cash* is the natural logarithm of the ratio of cash and cash equivalents to net assets, where net assets was obtained by subtracting cash and cash equivalents from total assets; *GDP* was computed as the annual percentage growth rate of each country GDP; *, **, *** indicate the significance levels at 10%, 5% and 1% respectively. For simplicity, the coefficients for the country effects dummies are omitted.

Table 3. 5. OLS estimates of Models 2 and 4 with three additional control variables (size, leverage and growth opportunities)

Variable	Basu (1997) Model		Variable	Ball and Shivakumar (2005) Model	
	Coefficient	<i>p</i> -Value		Coefficient	<i>p</i> -Value
Constant	4.393	0.000 ***	Constant	-0.719	0.000 ***
NEG	-1.430	0.176	DCFO	0.078	0.458
RET	-0.038	0.000 ***	CFO	-0.845	0.000 ***
NEG*RET	0.195	0.000 ***	CFO*DCFO	9.694	0.000 ***
Cash	0.301	0.000 ***	Cash	0.012	0.000 ***
Cash*NEG	-0.017	0.805	Cash*DCFO	0.005	0.519
Cash*RET	-0.001	0.041 **	Cash*CFO	-0.031	0.000 ***
Cash*NEG*RET	0.007	0.005 ***	Cash*CFO*DCFO	0.322	0.016 **
Controls	Included		Controls	Included	
Controls*NEG	Included		Controls*DCFO	Included	
Controls*RET	Included		Controls*CFO	Included	
Size*NEG*RET	-0.008	0.000 ***	Size*CFO*DCFO	-0.431	0.000 ***
Leverage*NEG*RET	0.033	0.032 *	Leverage*CFO*DCFO	-0.091	0.85
Sales Growth*NEG*RET	-0.027	0.007 ***	Sales Growth*CFO*DCFO	0.541	0.119
GDP	0.029	0.002 ***	GDP	0,000	0.377
Observations	4,640		Observations	4,640	
Adjusted R ²	0.0693		Adjusted R ²	0.4987	
Country Effects	Yes		Country Effects	Yes	

Notes: Table 5 presents the OLS estimates of Models 2 and 4 with three additional control variables (size, leverage and growth opportunities); *NI* is the dependent variable of Basu's (1997) model and was computed as earnings per share before extraordinary items; *NEG* is a dummy variable that equals one in the case of bad news and 0 otherwise; *RET* is the stock rate of return of the firm over the 12 months beginning nine months prior to the end of fiscal year; *ACCR* (Total Accruals) is the dependent variable of the model of Ball and Shivakumar (2005) and was computed as net income before extraordinary items minus cash flow from operations, scaled by total assets; *FCO* is the cash flow from operations scaled by total assets; *DCFO* is a dummy variable that equals one if *CFO* is negative, and 0 otherwise; *Cash* is the natural logarithm of the ratio of cash and cash equivalents to net assets, where net assets was obtained by subtracting cash and cash equivalents from total assets; *Size* is the logarithm of net assets; *Leverage* is the ratio of total debt to net assets; *Sales Growth* is the annual percentage change in firm's sales; *GDP* was computed as the annual percentage growth rate of each country GDP; *, **, *** indicate the significance levels at 10%, 5% and 1% respectively. For simplicity, the coefficients for the country effects dummies are omitted.

Table 3. 6. OLS estimations of the effect of corporate governance on the association between accounting conservatism and cash holdings

Variable	Basu (1997) Model		Variable	Ball and Shivakumar (2005) Model	
	Coefficient	<i>p</i> -Value		Coefficient	<i>p</i> -Value
Constant	0.152	0.411	Constant	-0.006	0.032 **
NEG	0.526	0.050 *	DCFO	0.034	0.006 ***
RET	-0.000	0.815	CFO	-0.034	0.001 ***
NEG*RET	0.006	0.496	CFO*DCFO	0.528	0.025 **
Cash	-0.086	0.107	Cash	0.001	0.093 *
Cash*NEG	0.202	0.032 **	Cash*DCFO	0.022	0.000 ***
Cash*RET	0,000	0.349	Cash*CFO	-0.016	0.000 ***
Cash*NEG*RET	-0.000	0.954	Cash*CFO*DCFO	0.298	0.000 ***
Governance	-0.002	0.157	Governance	0.000	0.007 ***
Governance*NEG	-0.001	0.647	Governance*DCFO	0.000	0.73
Governance*RET	0.001	0.356	Governance*CFO	-0.000	0.121
Governance*NEG*RET	-0.001	0.944	Governance*CFO*DCFO	-0.000	0.54
GDP	0.059	0.000 ***	GDP	0,000	0.165
Observations	784		Observations	784	
Adjusted R ²	0.0931		Adjusted R ²	0.2483	
Country Effects	Yes		Country Effects	Yes	

Notes: Table 6 reports OLS estimations of the effect of corporate governance on the association between accounting conservatism and cash holdings; *NI* is the dependent variable of Basu's (1997) model and was computed as earnings per share before extraordinary items; *NEG* is a dummy variable that equals one in the case of bad news and 0 otherwise; *RET* is the stock rate of return of the firm over the 12 months beginning nine months prior to the end of fiscal year; *ACCR* (Total Accruals) is the dependent variable of the model of Ball and Shivakumar (2005) and was computed as net income before extraordinary items minus cash flow from operations, scaled by total assets; *FCO* is the cash flow from operations scaled by total assets; *DCFO* is a dummy variable that equals one if *CFO* is negative, and 0 otherwise; *Cash* is the natural logarithm of the ratio of cash and cash equivalents to net assets, where net assets was obtained by subtracting cash and cash equivalents from total assets; Management Score is a governance score developed by Thomson Reuters and was calculated using percentile rank scoring and ranges from 0 to 100. A lower score indicates weak governance, while a higher score indicates stronger governance; GDP was computed as the annual percentage growth rate of each country GDP; *, **, *** indicate the significance levels at 10%, 5% and 1% respectively. For simplicity, the coefficients for the coefficients for the country effects dummies are omitted.