Cash holdings and their impact on audit fees

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Abstract

In this paper, we examine how auditors respond in terms of audit fees, to cash holdings that are a growing concern in corporate America. Holding everything else constant, we find that cash holdings are positively related to audit fees, reflecting that auditors' react to the level of firms' cash holdings, which is a source of agency costs. Additionally, our results indicate that cash holdings in firms with low growth opportunities induce auditors to raise audit fees. We also find that the audit fees-cash holdings relationship differs (1) between firms that are financially constrained and unconstrained and (2) between firms with high hedging and low hedging needs. In addition, we assess how corporate governance quality influences audit fee sensitivity to cash holdings under varying dimensions of growth opportunities, financial constraints and hedging needs and we find evidence that, on average, cash holdings in the presence of higher/lower shareholders' rights lead to higher/lower audit fees.

Keywords: audit fees; cash holdings; growth opportunities; financial constraints; hedging needs; corporate governance

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1. Introduction

The cash hoarding phenomenon among U.S. firms has received considerable attention from investors, analysts and researchers for over a decade. Instances that range from the Kirk Kerkorian–Chrysler Corporation standoff over large by piles of cash being held by the latter in 1996 (Opler, Pinkowitz, Stulz, & Williamson, 1999) to the David Einhorn–Apple Inc. standoff (De La Merced, 2013) that led to the announcement by Apple Inc. that it would return a total of $100 billion in cash to shareholders by the end of 2015 (Apple Inc., 2013) show that cash holding continues to be an important financial attribute of U.S. firms and deserves more scholarly attention. Audit researchers have a long-standing interest in understanding the determinant(s) of audit fees and how auditors respond to emerging trends in the capital market (Griffin, Lont, & Sun, 2010; Gul & Goodwin, 2010; Gul & Tsui, 1998). In this context, our study examines a largely ignored but important relationship, that between cash holdings and audit fees.

The finance literature provides several insights on firms' motives to hold cash. Pioneering work by Opler et al. (1999) on the determinants of cash holdings, for which the underlying motives appear to be precautionary and also related to transaction cost, reveals that firms with strong growth opportunities, riskier cash flows, lower access to capital markets and lower credit ratings tend to have a higher cash-to-assets ratio. Following Jensen (1986), who examined the agency costs of free cash flow (FCF), we could assume that cash holdings are a source of agency costs. Auditing is one of the important mechanisms that companies use to control such agency costs (Jensen and Meckling, 1976). The related audit literature in the context of FCF reveals that audit fees increase in relation to the agency costs in firms with higher FCFs (Griffin et al., 2010; Gul and Tsui, 1998). It is worth noting here that although FCFs and cash holdings share some common characteristics, i.e. both measure the cash resources of a firm, fundamental differences exist between the two. Free cash flow is an annual measure and derived from adjusted annual profit.[1] On the other hand, cash holdings represent the cumulative cash balances in a firm's balance sheet and could be much higher than FCF. Based on prior evidence on the link between FCF and audit fees, we could surmise that the agency costs arising from cash holdings would influence the pricing of audit fees, and therefore the first empirical test we perform in this study is aimed at shedding light on this supposition.

[1] See Gul and Tsui (1998) for the definition of free cash flow.

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Next we examine the link between cash holdings/growth opportunities and audit fees. The finance literature reveals a number of practical precautionary reasons why firms hold cash, which include among others, taking advantage of potential growth opportunities (Opler et al., 1999), the ability to react to the underinvestment problem that could lead to loss of market share to competitors (Haushalter, Klasa, & Maxwell, 2007), and the ability to better cope with adverse shocks (Bates, Kahle, & Stulz, 2009). Prior audit evidence on the FCF/growth opportunities link with audit fees seem to be inconclusive as auditors have been reported to raise audit fees for both low and high growth opportunities firms (Griffin et al., 2010). However following Jensen (1986), cash holdings in firms with low growth opportunities could entail higher agency costs compared to firm with high growth opportunities, and as result could induce higher audit effort and fees in firms with low growth opportunities. In this paper, we examine whether the link between cash holdings and audit fees differs between firms with low and high growth opportunities.

Third, we examine whether the financial constraints that firms face influence the relationship between cash holdings and audit fee. Evidence from the finance literature shows that cash holdings are more valuable for financially constrained firms than for unconstrained firms (Boyle & Guthrie, 2003; Denis & Sibilkov, 2010). For instance, financially constrained firms are less likely to gain access to external capital markets and hence cash holdings are useful for their current and future investment needs (Chan, Lu, & Zhang, 2013). Without cash reserves, financially constrained firms might be compelled to give up significant investments with current positive net values (Lin, Ma, & Xuan, 2011). The usefulness of cash may, in the face of financial constraints, influence auditors' pricing of cash holdings. In other words, the different degree of importance of cash holdings between financially constrained and unconstrained firms could influence the relationship between cash holdings and audit fees differently.

Fourth, we investigate whether firms' hedging needs influence the association between cash holdings and audit fees. The link between hedging needs and cash holdings has generated a strand of research that focuses on the precautionary motives for future investments (Acharya, Almeida, & Campello, 2007).[2] If higher hedging needs constitute a sound justification to hold cash, the association between cash holdings and audit fees due to agency costs concerns could

[2] Hedging needs is defined as the correlation between cash flow and investment opportunities, where a low correlation indicates high hedging needs and a higher likelihood of dependence on cash holdings to fund future investment.

vary according to the level of firms' hedging needs. Moreover, we infer from findings in the finance literature (Denis & Sibilkov, 2010) that the cash flow-investment relationship in constrained firms with high hedging needs is generally stronger than in unconstrained firms. Therefore, if the importance of cash holdings differs between financially constrained/unconstrained firms with high/low hedging needs, the association between cash holdings and audit fees could also differ between these firm types.

Evidence from the finance literature on the U.S. situation presents inconclusive evidence on whether there is a predictable pattern in the relationship between corporate governance and cash holdings (Bates et al., 2009; Ditmarr & Mahrt-Smith, 2007; Harford, 1999; Harford, Mansi, & Maxwell, 2008; Mikkelson & Partch, 2003). The audit literature has only recently seen an emergence in interest in firms' cash holdings and one recent study by Kim, Lee, & Park (2015) reveals that heightened external audit monitoring enhances the market value of cash holdings and corporate governance quality positively influences the market value of cash holdings. Taking into account these clues from these studies, in the last part of our analysis we control for the quality of corporate governance to determine if it influences the impact of cash holdings on audit fees. Then, delving further, we also examine the influence of corporate governance quality in the context of the association between cash holdings and audit fees and whether it varies in line with firms' growth opportunities, financial constraints and hedging needs.

Evidence of an association between cash holdings and audit fees under all the conditions discussed above is not available in the audit fee literature and this motivates our current investigation. Moreover, a strand of closely related prior research, which links agency costs to audit fees and corporate cash resources, has called for further research in this area (Gul & Tsui, 1998) because it is far from clear whether there is a direct link between the two (Griffin et al., 2010). Over the years, two of the more active areas of auditing and finance research have investigated the determinants of audit fees and corporate cash holdings, respectively. While these two sets of rich literature have generated important insights and vigorous debate (see e.g. Hay, Knechel, & Wong, (2006)) for audit fees and Bates et al. (2009) for cash holdings), surprisingly there has been little or no cross-fertilization of and links between them. However, doing so would likely improve our understanding of the reaction of auditors' (as an important participant

in the financial market) to the growing concerns over corporate cash holdings in the U.S. Evidence on audit effort, as reflected by audit fees in relation to cash holdings, would shed light on the potential of the audit as a mechanism to recognize the agency costs of cash holdings and would simultaneously broaden the perspectives in the finance literature in respect of explaining cash holdings in terms of agency costs. Recent developments appear to reflect some of the growing dissatisfaction among shareholders over the huge amounts of cash being piled up by U.S. firms, as manifested in the suing of Apple Inc. by David Einhorn's Greenlight Capital hedge fund. Given these concerns, we believe that a better understanding of cash holdings from the informational content of audit fees, which are priced to reflect risk and audit scope, would be useful and timely to a host of market participants. Since holding cash can be a double-edged sword for a firm (Ammann, Oesch, & Schmid, 2011), evidence on the link between audit fee variations and cash holdings could also help validate and complement the finance theory on the importance of cash holdings in the context of growth opportunities (Opler et al., 1999), financial constraints (Almeida, Campello, & Weisbach, 2004) and hedging needs (Acharya et al., 2007; Denis & Sibilkov, 2010).

Based on our analyses of data from 2000 to 2012 for a sample of U.S. firms, our empirical findings can be summarized as follows. From our first analysis, we find a significant and positive relation between cash holdings and audit fees. This suggests that auditors recognize and reflect the agency costs of cash holdings in the pricing of audit fees. Our second analysis reveals that growth opportunities strongly influence the effect of cash holdings on audit fees in firms with high growth opportunities. These associations support prior evidence (Griffin et al., 2010) and could reflect the higher audit risk posed by the prospect of managers' sub-optimal investment behaviors and financial statement manipulations in these types of firms. Our next analyses reveal that the effect of cash holdings on audit fees is weaker/stronger in firms that are financially unconstrained/constrained and supports the view that higher external monitoring and tendency to disgorge cash resources to shareholders among financially unconstrained firms reduce the audit effort required for cash holdings in these firms.

When we look at hedging needs, we find that the effect of cash holding on audit fees is more pronounced in firms with low hedging needs but in firms with high hedging needs, the cash

holdings-audit fees association is weakened and this supports our assertion that cash holdings backed by higher hedging needs reduces auditors' concerns over firms' cash holdings. Similar to prior evidence on cash holdings that double-partition firms along the dimensions of financially constrained/unconstrained firms and low/high hedging needs (Acharya et al., 2007; Denis & Sibilkov, 2010) we find the cash-holdings-audit fee association to be different between (1) financially constrained firms with low and high hedging needs and (2) financially unconstrained firms with low and high hedging needs. These findings indicate that auditors' assessment of the agency costs of cash holdings is outweighed by firms' hedging needs and is accordingly reflected in audit fees.

In our additional analyses, we find that corporate governance quality, proxied by shareholders' rights, strengthens the effect of cash holdings on audit fees, reflecting the increased demand from shareholders for a higher quality audit to possibly alleviate the concerns over the agency costs of cash holdings. In relation to growth opportunities, we find this observed result is consistent in firms with low growth opportunities but less apparent in firms with high growth opportunities. This implies that when less pressure is exerted by shareholders to conduct a higher quality audit of cash holdings in firms with high growth opportunities, this is reflected accordingly in audit fees. When we examine firms along the double dimensions of financially constrained/unconstrained and high/low hedging needs, we find the joint corporate governance/cash holdings effect on audit fees is insignificant when firms are financially constrained, regardless of whether they have low or high hedging needs. Finally, we find corporate governance quality to positively moderate the impact of cash holdings on audit fees in financially unconstrained firms with low hedging needs. These results seem to suggest that shareholders' demand for higher quality audit of cash holdings is lowered, in general, in the case of financially constrained firms but heightened for financially unconstrained firms with low hedging needs.

This study makes several contributions to the audit literature. Although the business press is abuzz with accounts of record-high amounts of cash holdings in U.S. corporations, studies that investigate auditors' response to this growing trend by analyzing a large data sample are still rare. Our study fills this void in the literature by providing a timely account of the impact of cash

holdings in the auditing context. Our study is among the first few studies on the U.S. market that examines cash holdings from an audit perspective and the first study to document the effects of cash holdings on audit fees charged to U.S. firms under a variety of financial conditions. This is especially useful because prior studies on cash holdings have focused by and large on the U.S. market. We show that auditors, as stakeholders in auditee firms, are also affected by U.S. firms' cash holdings. Our work complements the literature on agency costs-driven differentiated audits (e.g. Griffin et al., 2010; Gul & Tsui, 1998), where we specifically show that auditors view cash holdings by U.S. firms as contributing to agency costs and accordingly reflect this in their audit fees. The findings of our study correspond with a recent study by Kim et al. (2015) which shows that auditors provide higher quality audit for firms' cash holding in the U.S. We also provide evidence that audit fees induced by the agency costs of cash holdings vary in relation to the firms' financial constraints, hedging needs and corporate governance quality. Finally, in relation to the ongoing debate regarding U.S. firms' ever growing cash piles, this study also contributes to the wider accounting and finance literature by documenting the increased audit fees cost that firms incur as a result of cash holdings. While a better understanding of the agency costs of cash holding will directly benefit firms' shareholders, it will also be of vital importance to many other stakeholders such as creditors, debt holders, pension funds, regulatory bodies, as well as society in general.[3]

The next section provides a description of the background literature in relation to the development of the hypotheses. That section is followed by an explanation of the research design, particularly the sampling procedure and research methodology. Then the results of the study are discussed in the subsequent section and some conclusions are drawn in the final section.

[3] Understanding the agency cost of holdings and how its varies under different firm conditions from an auditing perspective could, for example, be useful as an additional dimension of input for (1) pension funds to assess their investee firms' cash balances that largely derive low returns and are assigned lower value to marginal dollar of cash (Pinkowitz & Williamson, 2004); (2) bond holders in the context of their conflict with shareholders and managers over minimum liquidity requirements and excess cash build-up (see Sufi, (2009)); (3) employers and labor unions because firms in more-unionized industries strategically hold less cash to gain bargaining advantages over labor unions and shield corporate income from their demands (Klasa, Maxwell, & Ortiz-Molina, 2009); and (4) regulators and policy makers in view of some recent empirical revelations (for example, in a study covering 31 countries, including the U.S., Boubakri, Ghoul and Saffar (2013) find that politicians use politically connected firms as "cash cows" to advance their political agendas and this trend is more apparent when corporate governance is weak).

2. Background and hypotheses

In this section, we discuss the agency costs and other financial implications associated with cash holdings and how auditors are expected to react in terms of audit fees. We also state our hypothesis.

2.1 Background

The framework for our tests can be understood by considering the agency setting in which the auditor acts an agent of shareholders and other stakeholders at large. The optimal action for the auditor is to supply the minimum amount of effort necessary to "obtain reasonable assurance about whether the financial statements are free of material misstatement, whether caused by error or fraud" (AU-C 200, 2012, paragraph 6). In doing so, auditors maximize their utility. The higher the effort by auditors, the less the likelihood of Type II errors occurring in audit reports (Laux & Newman, 2010). When auditors face situations that give rise to higher agency costs during the course of financial statement audits, they are also likely to recognize the higher audit risk that ensues and hence exert greater audit effort to prevent or reduce misstatements associated with moral hazard and adverse selection problems (Hope, Langli, & Thomas, 2012). Audit fees is an outcome of supply and demand factors and thus auditors cannot unilaterally charge higher fees for an additional effort unless there is a corresponding increase in client demand for the additional effort (DeFond & Zhang, 2014). Any adjustments to the audit effort by auditors are closely reflected in the audit fees, and as such, audit effort can be measured using audit fees (Whisenant, Sankaraguruswamy, & Raghunandan, 2003).

2.2 Hypothesis and detailed tests; controlling for growth opportunities, financial constraints, hedging needs and corporate governance quality

2.2.1 Cash holdings

Understanding the role of external audits in mitigating agency costs related to cash holding is important (Kim et al., 2015), specifically in relation to how audit fees could vary with respect to the agency costs of cash holdings. Agency costs in firms with higher free cash flow

are more severe (Jensen, 1986) because managers have more discretionary power as firm's free cash flow increases. In a similar vein, excess cash resources that is available at managers' discretion (after controlling for other important determinants) and not returned to shareholders as dividends creates agency problems (Jensen, 1986) such as increase in managers' self-benefiting consumptions (Jensen, 1989; Shleifer & Vishny, 1997)[4]. The fact that corporate managers have privileged access to cash reserves with little scrutiny and could divert these slush of funds into private benefits more easily than other types of assets (Myers & Rajan, 1998), could aggravate agency problems (Sun, Yung, & Rahman, 2012) and cause auditors to be more concerned with firms' cash holdings. While it is arguable to assume that firms that hold cash at present time have not spent the cash for self-benefiting purposes or discretionary spending as yet or engaged in earnings management and hence pose lower level of agency problems, findings from recent studies show otherwise. Firms' cash holding seem to be proportionate to the level of managers' opportunistic and non-value maximizing activities and this indicates suggest higher level of agency problems. Prior studies (Opler et al., 1999; Ferreira &Vilela, 2005) find information asymmetry and cash holdings to be positively associated, and recent studies show that cash holdings are generally higher in firms with poor accruals quality (Garcia-Teruel, Martinez-Solano, & Sanchez-Balesta, 2009; Sun et al., 2012). 'Firms that are informatively opaque would ceteris paribus hold higher cash balances as compared to firms that are informatively more transparent' (Sun et al., 2012, p.544). Earnings are expected to be more representative of cash flows or cash resources if accruals are of good quality (Garcia-Teruel et al., 2009). Firms with better accruals quality could afford to hold lower levels of cash, reducing unproductive liquid resources on their balance sheet (Garcia-Teruel et al., 2009). In a recent related study, Kim et al. (2005) show that high audit quality facilitates external discipline and play a different and incremental role in enhancing the market value of cash holdings.

Additionally, in a forum on audit risks in the current economic environment, Paul Schumacher, Associate Director of the Office of Research and Analysis of the Public Company Accounting Oversight Board (PBAOB) highlighted the cash hoarding trend among U.S. firms as a "classic area of audit risks" and one that poses audit implications due to managers' opportunistic behaviors and manipulations of financial statements (Schumacher, 2011). Firms

[4] Anita and Meyer (2006), for example, give an insightful account of how self-interested managers in the U.S. take advantage of shareholders for their personal gain by obtaining questionable and interest-free loans, corporate apartments and Super Bowl soirees for themselves.

with large cash holdings are regarded to be more predisposed to share buyback to improve their earnings per share and investment in substitutes for cash which carry unusual risk. Schumacher (2011) highlights that in spite of the nominal interest rate around zero, firms with large cash holdings reach for yield by investing in substitutes for cash (such as Auction Rate Securities and the European Sovereign Debt) which carries unusual risks and would entail additional audit risks. In addition to the factors mentioned above, audit fees due to cash holdings could be influenced by the audit risk of future litigation as recent findings by Arena & Julio (2015) show that firms with greater exposure to securities class action litigation hold significantly more cash in anticipation of future settlement costs. Since client's litigation risks, including 'client business risks' could affect auditors' litigation and reputation risk indirectly (DeFond and Zhang, 2014, p.296), auditors might raise their audit effort in firms with higher levels of cash. Collectively, the issues highlighted above would entail increased efforts by auditors with regards to cash holdings. Auditors are expected to allocate more resources and effort to reduce audit risk when faced with the prospect of non-value-maximizing managers (AU-C 330, 2012). Inherent risk and control risk is thought to be higher when larger amounts of cash are at managers' disposal (Gul & Tsui, 1998).[5, 6] Essentially, higher audit risk requires greater audit effort, which translates into higher audit fees (Ettredge, Fuerherm, & Li, 2014).

Our hypothesis follows from the discussion above and aims to examine the overall effect of cash holdings on audit fees. Holding other factors equal, we predict that a higher level of cash holdings will entail greater audit effort and result in higher audit fees. In short, when the agency costs of cash holdings and its associated audit risk and effort are higher, the audit fee increases. Stated formally, we expect to find that:

H1. There is a positive association between cash holdings and audit fees.

[5] One example at the extreme end of the spectrum of control risk relating to cash holdings could be the penalty imposed by the U.S. Securities and Exchange Commission (SEC) on PriceWaterhouseCoopers (PWC) in 2011 over the audit of Satyam Computer Services Ltd because of overstated cash balances.

[6] The current cash hoarding trend in the U.S. corporate scene seem to show no indication that it will slow down or reverse any time soon. In fact, the appearance of an article on CFO.com by John Calia advocating that firms continue to hold more cash seems to provide some insights on the current sentiments held by U.S. firms (Calia, 2013).

2.2.2 Cash holdings and growth opportunities

As mentioned earlier, cash holdings provide firms with certain pecuniary benefits when faced with high growth opportunities. Firms with higher growth opportunities value cash more than firms with lower growth opportunities. Although the issues associated with cash holdings in the preceding section on **H1** above could still be present in firms from all levels of growth opportunities, it could be comparatively lower in firms with high growth opportunities. The higher value or importance of cash holdings in firms with high growth opportunities could possibly dampen the motivation or opportunities that present conditions conducive to give rise to non-maximizing activities on the part of managers. Auditors may correspondingly take this into consideration and reduce their assessment of audit risk and audit effort in such firms.

On the other hand, the free cash flow arguments by Jensen (1986) on the moral hazards of agency costs in firms with low growth opportunities would likely cause auditors to pay higher attention to such firms' cash holdings. When companies exhaust their investment opportunities, cash resources are channeled toward loss-making or non-value-maximizing projects, which results in lower value to shareholders (Lang Stulz, & Walkling, 1991). Managers may justify their actions through creative accounting methods (Christie & Zimmerman, 1994) and as a result, auditors might accordingly view the potential for managers to misrepresent information as more likely (Anderson, Kadous, & Koonce, 2004).

Following from the discussion above, we place firms into either a high or a low growth opportunities group and if cash holdings in low/high growth opportunities firms do require higher/lower audit effort, then cash holdings should exert differential pressure on audit fees under both conditions.

2.2.3 Cash holdings and financial constraints

Prior evidence from the finance literature shows that, although on the one hand, cash holdings could cause agency problems and be detrimental to shareholder value (Jensen, 1986), on the other hand, they act as a buffer for corporate investment and financing decisions; external

capital would be costlier compared to internally generated funds due to capital market imperfections (Greenwald, Stiglitz, & Weiss, 1984; Myers & Majluf, 1984). Financial constraints are defined as the frictions that inhibit firms from funding desired investments due to reasons such as credit constraints, inability to borrow, inability to issue equity, reliance on bank loans and illiquidity of assets (Lamont, Polk, & Sa´a-Requejo, 2001, p. 529). Hence cash holdings become more valuable when firms face a higher degree of financial constraints because they mitigate the high cost of external finance (Denis & Sibilkov, 2010). The financial constraints that firms face may hamper or not present conditions conducive to give rise to possible non-value-maximizing activities on the part of managers due to the higher value of cash for these firms. Although the issues associated with cash holdings in Section *2.2.1* (**H1)** could still be present in firms from all levels of financial constraints, it may be comparatively lower in constrained firms. As a result, the required audit effort due to the agency costs of cash holdings could be lower in financially constrained firms. On the flipside, Almeida et al. (2004) argue that when firms have unrestricted access to capital markets or when they are financially unconstrained, there is no need to anticipate against future investment opportunities and liquidity becomes irrelevant. Thus when firms do not face financial constraints, the associated lower usage or importance of cash may possibly catalyze non-value-maximizing activities, stimulate dysfunctional financial reporting behavior and cause auditors to exert greater audit effort in relation to firms' cash holdings, and result in higher audit fees.

However, an alternate explanation from a line of prior studies is that proxies of financial constraints such Standard and Poor's framework (S&P) increases monitoring and disciplining of managers' action, limit opportunistic behavior and reduce information asymmetry between the firm and its external stakeholders (Ashbaugh-Skaife, Collins, & LaFond, 2006; Kang & Liu 2007).[7] The higher level of monitoring in firms which are rated by S&P (unconstrained firms) could in general, lower the required audit effort for the audit of cash holdings. In other words, the monitoring role played by S&P in unconstrained firms could dominate the agency costs-induced audit risk and effort of cash holdings and as a result weaken the cash holding-audit fees relationship. Since financially constrained firms stack up higher levels of cash compared to their

[7] Firms whose short-term or long-term debts are rated by S&P are generally regarded as financially unconstrained. Other proxies of financial constraints include but not limited to (1) dividend paying (unconstrained) vs. non dividend paying (constrained) firms, (2) firm size and (3) the Kaplan & Zingales (1997) Index.

financially unconstrained counterparts (Opler et al., 1999), and coupled with the fact that higher levels of cash are synonymous with higher levels of information asymmetry and poorer levels of accruals quality (Garcia-Teruel et al., 2009), auditors could allocate higher audit effort and charge higher audit fees in financially constrained firms. Similarly, although firms that pay dividends are considered financially unconstrained and may induce auditors to raise audit effort and fees as argued in the preceding paragraph above, another line of studies show that firms that pay dividends (unconstrained) have higher earnings quality (Lawson & Wang, 2015), reduce cash resources available at managers' discretion, reduce agency costs (Jensen, 1986) and could as a result, induce auditors to lower audit fees (Griffin et al., 2010). To sum up, if we employ established methods from prior studies to partition firms into financially constrained and unconstrained groups, it is not clear *a priori* whether cash holdings might have a weaker/stronger effect on audit fees respectively, or vice versa. In the interest of understanding the influence of cash holdings on audit fees in greater depth and alongside explanations from the finance literature, we examine how financial constraints influence the relationship between cash holdings and audit fees.

2.2.4 Cash holdings and hedging needs

The high cost of external finance compared to internally generated funds influences the way in which firms make their financing and investment decisions and gives rise to a hedging motive (Froot, Scharfstein, & Stein, 1993). Using a model that considers the process governing firms' investment demand and the ability to fund investment, Acharya et al. (2007) empirically operationalize the notion of hedging needs, i.e. the correlation between a firm's cash flow and investment or growth opportunities.[8] We adopt a similar approach to measure hedging needs to determine if it influences the cash holdings-audit fees association. Acharya et al. (2007) find that (1) high hedging needs strongly explain the propensity to hold cash among financially constrained firms only and (2) low hedging needs do not result in a propensity to save cash among both financially constrained and unconstrained firms. Although a common characteristic is apparent among (1) financially constrained firms with low hedging needs and (2) financially unconstrained firms with low or high hedging needs, in relation to cash holdings propensity, it is

[8] See Acharya et al. (2007) for a thorough discussion on hedging needs and how they influence firms' propensity to hold cash.

both possible and plausible to examine low and high hedging needs in their own right (without controlling for financial constraints). This is because cash holdings could still be valuable regardless of whether firms are financially constrained or unconstrained in the face of market imperfections and information asymmetries.[9] For example, the real possibility that financially unconstrained firms with high hedging needs may value cash holdings to avoid the transaction cost of raising external capital cannot be completely discounted.[10] Accordingly, audit pricing could vary in line with firms' hedging needs.

To the best of our knowledge, our attempt to examine hedging needs in their own right is the first of its kind, where we specifically explore this variable in the context of audit pricing. Firms' higher hedging needs might reduce the availability of cash for opportunistic purposes. Consistent with the arguments in the preceding section **(H1)** on the risk of opportunistic behavior and misreporting in financial statements and the resultant audit effort, firms with high hedging needs (compared to firms with low hedging needs), may possibly require lower audit effort because of the higher value of cash holdings for these firms. In other words, in the context of firms' high/low hedging needs, auditors' concerns over agency costs of cash holdings might lessen/increase, leading to lower/higher audit effort and consequently lower/higher audit fees, *ceteris paribus*.

2.2.5 Cash holdings, financial constraints and hedging needs

Our next test follow from the preceding discussions related to Sections *2.2.3* and *2.2.4* above and are based on a line of research that partitions firms into financially constrained/unconstrained and with low hedging/high hedging needs in the context of cash holdings (Acharya et al., 2007; Denis & Sibilkov, 2010). Evidence from the finance literature shows that (1) firms' financing and investing activities are consistent with the theoretical link between hedging needs and financing constraints (Acharya et al., 2007) and (2) cash holdings are associated with higher levels of investment and firm value in financially constrained firms with high hedging needs (Denis & Sibilkov, 2010). To assess the link between financial constraints

[9] An examination of the valuation effect of cash holdings is beyond the scope of our study.
[10] Classical models in economics and finance (see Keynes, 1934) describe how, by holding cash, firms can save the transaction cost of (1) raising external capital and (2) liquidating assets to make payments.

and hedging needs in the context of cash holding and audit fees, first we examine whether the effect of cash holdings on audit fees varies between financially constrained firms that face high or low hedging needs. Second, we examine the variation in audit fees as a result of cash holdings between financially unconstrained firms that face high or low hedging needs. In financially unconstrained firms that face low hedging needs, auditors may assess the audit risk to be higher, given the potential for non-value-maximizing activities by managers, and hence increase audit effort, which could then result in higher audit fees. The opposite could be argued for financially unconstrained firms with high hedging needs. Similarly, concerns over the agency costs of cash holdings may be lower in financially constrained firms with high hedging needs (compared to low hedging needs) due to prevailing conditions that lessen the prospect of managerial opportunistic behaviors. If so, the likelihood of misstatement or manipulation of financial statements could also differ along these dimensions of financial constraints and hedging needs, possibly prompting auditors to reduce or increase their audit effort and charge lower or higher audit fees for cash holdings accordingly. In this section we test (1) whether the effect of cash holdings on audit fees in financially constrained firms differ between those with high hedging needs and those with low hedging needs and (2) whether the effect of cash holdings on audit fees in financially unconstrained firms differ between those with high hedging needs and those with low hedging needs.

2.3 Interactions with Corporate Governance Quality

2.3.1 Cash holdings, growth opportunities and corporate governance quality

Further building on the arguments presented for **H1** above, auditors' assessment of audit risk and extent of audit effort in relation to cash holdings might be influenced by the quality of firms' corporate governance. Firms with stronger governance structures have been shown to hold higher levels of cash (Harford et al., 2008) and the value of cash holdings is higher when shareholder protection is more effective (Dittmar & Mahrt-Smith (2007). On the other hand, external auditors have been reported to play a different and incremental role in enhancing the market value of cash resources (Kim et al., 2015). Since external auditing is a governance mosaic by itself, it would be ideal to understand the joint effect of external audit and shareholders' rights on firm's cash holdings. Stronger shareholder rights could entail higher demand on the audit of

cash holdings to mitigate its agency costs and enhance value, thus raising audit fees. In other words, stronger corporate governance quality could possibly intensify the effect of cash holdings on audit fees.[11] In order to further evaluate the influence of corporate governance quality on the cash holdings-audit fees association, we consider the relevance of firms' level of growth opportunities along the lines mentioned above.

2.3.2 Cash holdings, financial constraints and hedging needs when controlling for corporate governance quality

Based on the preceding discussion in Section *2.3.1* and in the context of the preceding arguments regarding firms' financial constraints and hedging needs, as discussed in Section *2.2.5***,** our final tests consider the effects of the corporate governance quality/cash holdings link on audit fees**.** In other words, we examine if corporate governance quality influences the effect of cash holdings on audit fees in the face of firms' financial constraints and hedging needs.

3. Data and research design

3.1 Data collection

The initial sample consists of public firms in the U.S. with available audit fee data in the Audit Analytics database for the period 2000-2012 (125,332 firm-year observations).[12] The firms' S&P bond and short-term debt ratings, as well as their financial and segment data are retrieved for the same period from Compustat and matched with the data from Audit Analytics by using the central index key, thereby reducing the total number of firm-year observations to 83,874. After applying additional sample selection criteria, i.e. eliminating companies from the financial and insurance sector (SIC codes 6000–6999), missing values of dividends, share repurchases, other financial variables and nonpositive values of total book assets and cash holdings, the sample is further reduced to 28,252 firm-year observations.[13] This sample is also

[11] It is also possible that that auditors may rely more on the monitoring role of shareholders in firms with stronger shareholder rights (given that shareholders have stronger control over management) and this could translate into lower audit risk of cash holdings and as a result weaken the effect of cash on audit fees.

[12] The post-2000 era has seen the biggest rise in record-high cash holdings in U.S. firms. The Federal Reserve's Flow of Funds report showed that U.S. nonfinancial companies held more than $1.7 trillion in liquid assets at the end of June 2011 (Casselman, 2011).

[13] Following Griffin et al. (2010), companies that change their auditor are removed because the subsequent new audit firm's audit fees are affected by the reason for the removal of the previous auditor (e.g. voluntary resignation, dismissal etc.) and, secondly, the Arthur Anderson effect is eliminated. Nevertheless, the results of our multivariate analyses remain unchanged and robust when firms with auditor changes and Arthur Anderson auditees are included.

matched with data on class action lawsuits retrieved from the Securities Action Clearinghouse (SCAC) Web site (http://securities.stanford.edu/) from 2000-2012. In order to control for the quality of corporate governance (Table 7), the total number of observations is further reduced to 3,889 by applying the Gompers et al. (2003) index (*G-INDEX*).[14]

---Insert Table 1 about here---

3.2 Model specification

We develop the audit fee model following prior studies (Griffin et al., 2010; Gul & Tsui, 1998; Simunic, 1980) to test our hypotheses, and estimate the following baseline *Model 1*:

$$LAF = b0 + b1CASH + b2CASH\ FLOW + b3SIZE + b4DEBT + b5SEGMENTS + b6AR + b7INV + b8DOMESTIC\ INCOME + b9FOREIGN\ INCOME + b10TAX\ REPATRIATION\ COSTS + b11CASHETR + b12ZSCORE + b13BIG4 + b14FISCAL + b15LNAF + b16DIVIDEND + b17REPURCHASE + b18GROWTH\ OPP + b19R\&D + b20CAPEX + b21ACQUISITION + b22DACC + b23LITIGATION + b24INDUSTRY\ SIGMA + YEAR\ INDICATORS + SIC\ INDICATORS + \varepsilon. \quad (1)$$

In our subsequent analyses, we use the contrasts across (1) two firm types (based on a partition of the dimensions above by low and high groupings) (reported in Table 5) and (2) four firm types (following Acharya et al. (2007) and Denis & Sibilkov (2010); based on the intersection of the level of financial constraints and the level of hedging needs) to conduct our tests (reported in Tables 6 and 7).[15]

3.3 Variables

[14] Professor Andrew Metrick's website at http://finance.wharton.upenn.edu//~metrick/data.htm provides public access to the Gompers, Ishii, & Metrick (2003) GIM index data and is available until the year 2006. RiskMetrics (former IRRC) provides similar governance data for the period after 2006 but the recent governance data are not comparable with the GIM index data because of the change in the data collection methodology.

[15] The use of contrasts across four firm types allows the error term to vary across group estimations. On the other hand, running a single regression (using tripe interaction terms between cash, financial constraint and hedging needs as continuous variables) is likely to cause the *t*-statistics to be inflated and could possibly lead to Type 1 inference errors.

3.3.1 Dependent variable

Consistent with most prior audit fee studies, our dependent variable is the natural log of audit fees (LAF).

3.3.2 Cash holdings

Since prior studies have already investigated the effect of free cash flow on audit fees (Gul & Tsui, 1998; Griffin et al., 2010), we compute our measures of cash holding that is 'net of free cash flow' to capture the incremental effect of net cash holdings on audit fees. As mentioned earlier, free cash flow is an annual-based measure and partly contributes to firms' build-up of cash holdings. In audit fees models, placing cash holdings alongside free cash flows as independent variables could amount to double counting cash holdings to a certain degree because annual free cash flows partly contribute to firm's cash holdings build-up. Additionally, it also prevents us from isolating the cash holdings effect from the free cash flows effect on audit fees. We derive two measures of cash holdings that are modified from the most commonly used measures of cash holdings in prior studies (Opler et al., 1999; Bates et al., 2009), i.e. (1) the ratio of cash and marketable securities minus cash flow to total assets (*CASH 1*) and (2) the ratio cash and marketable securities minus cash flow to net assets (*CASH 2*), where net assets equals total assets minus cash and marketable securities.

3.3.3 Growth opportunities

Growth opportunities (*GROWTH_OPP*) is defined as (book value of total assets - book value of equity + market value of equity)/book value of total assets. Following Griffin et al. (2010), first, we calculate the median growth opportunity for each year. Then, based on the (different) median value for each year we classify the firms into those with low growth opportunities (below the median) and those with high growth opportunities (above the median). Finally, we combine the firms with low growth opportunities in each of the 13 years covered by this study into one group and those with high growth opportunities into another group. This allows us to draw a comparison with the study of Griffin et al. (2010) on FCFs and audit fees.

However, all our regression results remain unchanged when we assign firms in the bottom (top) three deciles of *GROWTH_OPP* to the low (high) growth opportunities group.[16]

3.3.4 Financial constraints criteria

Although there is no general agreement on the best way to measure the level of financial constraints firms face, the literature provides several ways to identify firms that are financially constrained. The three proxies of financial constraints employed in this study are paper rating, debt rating (consistent with Denis & Sibilkov, 2009) and the Kaplan and Zingales (KZ) Index (consistent with Lamont et al. (2001)).

S&P DEBT RATING DUM (long-term rating)

Following Denis and Sibilkov (2009) and Almeida et al. (2004), we classify firms as financially "constrained" if they have outstanding debt in a particular year and have never had their long-term debt rated by Standard & Poor's (S&P Long-term Senior Debt Rating). Accordingly, companies are classified as financially "unconstrained" if their long-term debt is rated by the S&P Long-term Senior Debt Rating and their rating is not in the default "D" or statutory default "SD" category. Firms that do not have any outstanding debt are also classified as "unconstrained"

S&P PAPER RATING DUM (short-term rating)

Using similar criteria as above, we classify firms as financially "constrained" if they have outstanding short-term debt in a particular year and have never had their short-term debt rated by S&P. In a similar way, firms are classified as financially "unconstrained" if they have their short-term debt rated by S&P and their rating is not in the default category of "D" or "SD". Firms without any short-term debt are also classified as "unconstrained."

[16] The results of all our regression analyses remain unchanged when we replace *CASH 1* or *CASH 2* with the ratio of cash and marketable securities to total assets or the ratio of cash and marketable securities to net assets respectively.

KZ Index

Similar to other studies, (Kaplan & Zingales, 1997; Lamont et al., 2001), our third measure of financial constraints is the KZ Index. The five-factor KZ Index is computed as follows:

KZ Index = -1.001909 x *Cash Flows / K + 3.139193* x *Debt / Total Capital + -39.3678* x *Dividends / K + -1.314759* x *Cash / K + 0.2826389* + x *Q*,
in which:

Cash Flows = (Income Before Extraordinary Items$_t$ *+ Total Depreciation and Amortization*$_t$*)*

K = PP&E$_{t-1}$

Debt = Total Long-term Debt$_t$ *+ Notes Payable*$_t$ *+ Current Portion of Long-term Debt*$_t$

Dividends = Total Cash Dividends Paid$_t$ *(common and preferred)*

Cash = Cash and Short-term Investments$_t$

Q = (Market Capitalization$_t$ *+ Total Shareholder's Equity*$_t$ *-Book Value of Common Equity*$_t$ *+Deferred Tax Assets*$_t$*)/Total Shareholder's Equity*$_t$

Consistent with Lamont et al. (2001), we classify the top 33% of all firms ranked in the KZ Index as "constrained" and the bottom 33% as "unconstrained".

3.3 5 Hedging needs

Firms are classified as having either low hedging needs or high hedging needs based on the correlation between cash flow and investment opportunities, consistent with Denis and Sibilkov (2009).[17] Firms which show a negative and significant correlation of -0.2 and below are classified as firms having high hedging needs and firms with a positive and significant correlation of 0.2 and above are classified as having low hedging needs.

[17] Investment opportunity is measured as the median sales growth over the following three years for each firm-year in the same two-digit SIC industry. Cash flow is measured as the cash flow from operations.

3.3.6 Corporate governance quality

We use the governance metrics based on the anti-takeover provisions in Gompers et al. (2003) to investigate the influence of corporate governance quality on the cash holdings effect on audit fees. Gompers et al. (2003) construct their governance index (*G*) using the incidence of 24 governance rules to proxy for the level of shareholder rights in the U.S. Following Gompers et al. (2003) and Kim et al. (2015), we create 10 portfolios wherein we classify firms into groups beginning with $G \leq 5$ and this is decoded as 10, then each value of *G* from G = 6 through $G = 13$ is decoded in descending order from 9 to 2, and ending with $G \geq 14$, decoded as 1. We name this categorical variable as *G-INDEX*. *G* represents the sum of one point for the existence (or absence) of each of the 24 indices of governance rules and is obtained from Gompers et al. (2003). *G-INDEX* is a proxy for outside shareholder rights, where the higher the index the stronger the shareholder rights.

3.3.7 Control variables

Free cash flows is measured in two ways, (1) earnings after interest, dividends and taxes but before depreciation to total assets (*CASH FLOW 1*) and (2) earnings after interest, dividends and taxes but before depreciation to net assets (*CASH FLOW 2*). Firm or auditee size is measured by the natural log of total book assets *(SIZE)*. Auditee complexity is measured as the number of business segments *(SEGMENTS)*. A busy audit season is represented by a dummy variable *(FISCAL)* that takes the value of 1 if an auditee has a December 31st financial year end and 0 if otherwise. The natural log of non-audit fees *(LNNAF)* is included to control for the possible relationship with audit fees. Other pertinent controls in the model include the debts-to-assets ratio *(DEBT)*, default risk of the company *(ZSCORE)*, accounts receivables-to-assets ratio *(AR)* and inventory-to-assets ratio *(INV)*. Auditor size is represented by a dummy variable for the Big 4 audit firms *(BIG4)*. Following Griffin et al. (2010), *DIVIDEND* is a dummy variable that is denoted as 1 if an auditee pays dividend and 0 if otherwise and *REPURCHASE* is a dummy variable if the upper quartile purchase of common and preference shares divided by assets equals 1 and 0 if otherwise. Earnings management is measured as the absolute value of discretionary accruals *(DACC)* estimated from the Jones (1991) model, augmented with return on assets as

suggested by Kothari, Leone, & Wasley (2005) and estimated by industry and year, where industries are defined using two-digit SIC codes.[18] This is because prior evidence shows that firms with higher discretionary accruals incur higher audit fees (Gul, Chen, & Tsui, 2003).

We also incorporate a number of additional variables to control for the effects of factors that could generate extra work and risk for auditors as a result of firms' cash holdings and to enable our model to capture the incremental effect of cash holdings on audit fees. *DOMESTIC INCOME* is measured as a firm's domestic pretax income to total assets. *FOREIGN INCOME* is represented by income of a firm's foreign operations before taxes and scaled by total asset because we acknowledge that firms with more foreign income hold more cash, even in the absence of any tax effect (Foley, Hartzell, Titman, & Twite, 2007),[19] and also could generate extra audit risk and effort for auditors.[20] *TAX REPATRIATION COSTS* is computed by subtracting foreign taxes paid from the product of a firm's foreign pretax income and the U.S. statutory tax rate and scaled by total assets, as described in Foley et al. (2007) and Hanlon, Maydew, & Saavedra (2014) because we recognize that firms facing higher repatriation tax costs hold higher levels of cash. Following Hanlon et al. (2014) and Dyreng, Hanlon, & Maydew (2008) uncertain tax benefit *(CASHETR)* is measured the firms' cash taxes paid over five-year period divided by the sum of pretax income over five-year period, as firms which are subject to greater tax uncertainty hold larger cash balances.

Research and development expenditure *(R&D)* is measured as the ratio of *R&D* to total assets and is set equal to zero when *(R&D)* is missing. Prior evidence shows that the higher their R&D investments, the higher are firms' potential agency costs from opportunistic transfer of wealth away from shareholders and the higher is the need for audit effort and audit quality (Godfrey & Hamilton, 2005).[21] *CAPEX* represents the ratio of capital expenditures to total assets. *CAPEX* is easily verifiable by auditors and reduces the amount of cash available managers' disposal. Audit risk associated with *CAPEX* could be lower as compared to cash holdings

[18] Our regressions results remain robust when we replace discretionary accruals (DACC) with total accruals.
[19] Foreign income could be regarded as a good proxy of foreign-held cash because 'the delay between when cash from earnings is received and when it is used could generate a mechanical positive relation between cash holdings and income' (Foley et al., 2007, p.586). Zero is assigned to firms with missing values of foreign income.
[20] Desai, Foley, Hines (2006) analyzes the use of havens by U.S. multinationals and finds that nearly 60% of U.S. firms with substantial foreign operations had an affiliate presence in a tax-haven country and this could make the work of auditors much harder and riskier.
[21] Firms with higher R&D have also been reported to have higher levels of cash holdings (Bates et al., 2009).

because 'investment in fixed assets can be traced, i.e. a plant cannot disappear, but cash can' (Pinkowitz, Stulz, & Williamson, 2003, p.6) and liquid assets can more easily be used by managers to enrich themselves compared to fixed assets to (Myers & Rajan, 1998).[22] *ACQUISITION* is defined as acquisitions divided by total assets and we expect it to affect audit fees in same manner as *CAPEX*. Based on Arena & Julio (2015), a firm's litigation initiation year and the consecutive three years is denoted as 1 and 0 if otherwise (*LITIGATION*). We control for *LITIGATION* because firms that are exposed to litigation risks hold higher levels of cash (Arena & Julio, 2015) and auditors in such firms charge higher audit fees (Defond & Zhang, 2014). Following Bates et al. (2009), industry cash flow risk *(INDUSTRY SIGMA)* is measured as the prior ten-year standard deviation of cash flow as firms with greater cash flow risks have higher levels of cash, and also lower accrual quality (Dechow & Dichev, 2002), and may therefore require higher audit effort and audit fees. The model also includes industry indicators, defined at the two-digit SIC code *(SIC INDICATORS)*, and year indicators (*YEAR INDICATORS*).

---Insert Table 2 about here---

4. Empirical results

4.1 Descriptive statistics

Table 3 presents summary statistics on the variables examined in our regression analyses.[23] The "Total" column reports the mean, median and standard deviations of all variables from the full sample. The overall sample mean and median of *LAF* is 13.363 and 13.254, respectively.[24] *CASH 1* has a mean and median of 0.178 and 0.103, respectively, for the overall sample. The mean and median of *CASH 1*, another proxy of firm cash holdings, is 0.467 and 0.213, respectively. To our knowledge, no previous audit study has distinguished firms along differentiated levels of financial constraints and hedging needs. Following Acharya et al. (2007) and Denis and Sibilkov (2010), our tests need to identify firms along both of these dimensions and growth opportunities hence we highlight the basic differences in firm characteristics across the subsamples. Such a presentation of these descriptive univariate statistics is not only interesting in its own right, but also helps us to evaluate the merits of these dimensions for our

[22] CAPEX also reduces the amount of cash available at managers' discretion.
[23] All continuous variables are winsorized at the 1st and 99th percentiles to control for extreme values.
[24] Our LAF mean approximates the findings of recent studies such as Eshleman and Guo (2014) and Griffin et al. (2010).

multivariate analysis.[25] For the sake of completeness and robustness, we summarize all the variables used in our analysis across all possible categorizations.

Our univariate analysis compares all continuous variables for subsamples stratified according to growth opportunities, financial constraints criteria and hedging needs. The *t*-statistics show that all the pairings differ statistically, except in a few cases ((1) *CASHETR* between financially constrained and unconstrained firms, (2) *SEGMENTS*, *INV*, and *CASHETR* between low and high *GROWTH_OPP*, and (3) *INDUSTRY SIGMA* between low and high *HEDGING NEEDS*.[26] This suggests that audit fees, cash holdings and other firm-specific determinants in the audit price model mostly differ according to the firms' level of growth opportunities, financial constraints and hedging needs. Specifically, with respect to the key variables of interest to this study (audit fees and cash holdings) the means of *LAF* are higher in firms that have High *GROWTH_OPP* and are financially unconstrained, in comparison to its respective opposite pairings. The means of *CASH 1* and *CASH 2* are higher in firms that have High *GROWTH_OPP*, are financially constrained and have low *HEDGING NEEDS*.[27] The self-explanatory fraction of dummy variables that are denoted as 1 are also presented according to the stratified subsample pairs.

---Insert Table 3 about here---

4.2 Multivariate analysis

Tables 4 - 7 present the results of our regression analyses. The OLS regressions results from Tables 4–7 report the coefficients and *t*-statistics.[28] Throughout this paper, all reported *t*-statistics in parentheses are adjusted using robust standard errors corrected for firm-level clustering (Peterson, 2009).

[25] Sample descriptive and univariate statistics can only go so far in providing evidence to support any theory on the marginal allocation of audit fees and cash holdings, so cannot be used to draw inferences about the dynamics of cash holdings and audit fees. In contrast, the multivariate analyses presented below are designed to cast light on the effect of cash holdings on audit pricing.

[26] The univariate results using *t*-statistics are robust to the non-parametric Mann–Whitney U-test.

[27] Our means of cash holdings between firms with low and high growth opportunities mirror the findings of Opler et al. (1999) and our means of cash holdings between (1) firms that are financially constrained and unconstrained and (2) firms that have low and high hedging needs mirror the findings of Acharya et al. (2007).

[28] We do not report correlations to save space, but in unreported tests, all the variance inflation factors (VIFs) are below 4.00 in all of the specifications tabulated in Tables 4–7, which is well below the threshold of 10 suggested by Kennedy (1992). Furthermore, all of our regression results (untabulated) remain consistent using a Newey-West (1987) procedure correcting for any serial and autocorrelation.

4.2.1 Test of cash holdings

Table 4 present the results for H1, where we test whether cash holdings drive audit fees upward or otherwise. Cash holdings is proxied by cash holdings minus cash flow to total assets (*CASH 1*) in column 1 and cash holdings minus cash flow to net assets (CASH 2) in column 2.[29] The regressions results reveal a positive significant coefficient between cash holdings and audit fees (Column 1; Coefficient = 0.171; $p<0.05$ and Column 2; Coefficient = 0.069; $p<0.05$). A 1 standard deviation increase in *CASH 1* in Column 1 corresponds to a 3.5% increase in *LAF* and in Column 2 corresponds to a 1.4% increase in *LAF*. Our results are consistent with our hypothesis and suggest that, *ceteris paribus*, auditors assess firms with higher levels of cash holdings as having higher levels of audit risk, exert more audit effort and hence charge higher audit fees.

4.2.2 Test of cash holdings and growth opportunities

Columns 1 and 2 of Table 5 present our regression analyses after partitioning the main sample into firms with high growth opportunities and firms with low growth opportunities. The coefficients for *CASH 1* are positive and significant for firms with low growth opportunities only (Column 1; Coefficient = 0.198; $p<0.05$) but insignificant for firms with high growth opportunities. In unreported tests, we run two tests to compare the coefficients across the high and low growth opportunities groups; (1) whether overall, the coefficients from the two models are equal to each other and (2) whether, individually, *CASH 1* are equal between the two groups and find the chi-square results to be significant and this indicates that the coefficients in (1) and (2) differ with each other.[30] The significance of *CASH 1* for firms with low growth opportunities indicates that the audit effort and resultant audit fees attributable to cash holdings is higher for this group. A 1 standard deviation increase in *CASH 1* is associated with a 4.1% increase in *LAF* for low growth opportunities firms. The observed results for the effects of cash holdings on audit fees in the context of growth opportunities generally fall in line with the argument by Jensen

[29] We employ *CASH 1* in our subsequent analyses throughout this paper (Tables 5-7) but our results remain robust to *CASH 2* and other proxies of cash holdings, as explained in the Additional robustness check section.

[30] The tests of comparison of coefficients between groups is generally a post estimation test and available in Stata software via the *suest* command. Typical applications of *suest* are tests for intramodel and cross-model hypotheses.

(1986) that the higher moral hazards of agency costs in firms with low growth opportunities is greater and hence cause auditors to pay higher attention to these firm's cash holdings.

---Insert Table 4 about here---

4.2.3 Test of cash holdings and financial constraints

When we split the sample into constrained and unconstrained firms in Table 5, we find the *CASH 1* coefficients are positive and significant for constrained firms only (Column 4; S&P Paper Rating; Coefficient = 0.241; $p<0.01$, Column 6; S&P Bond Rating; Coefficient = 0.331; $p<0.01$ and Column 8; KZ; Coefficient =0.183; $p<0.05$). The results of *CASH 1* for unconstrained firms (using all three proxies of financial constraints) are insignificant. 1 standard deviation increases in *CASH 1* correspond to increase in 5.0%, 6.9% and 3.8% using S&P Paper Rating, S&P Bond Rating and KZ respectively in *LAF* for constrained firms. These results show that the effect of cash holdings on audit fees is weak in financially unconstrained firms compared to financially constrained firms. Similarly, when we partition the panel into dividend paying (unconstrained) and dividend-non-paying (constrained) groups, our results (unreported) remain unchanged. Our results for KZ also remain consistent with the results of other proxies of financial constraints. In unreported analyses, we find the tests of difference of coefficients across the constrained and unconstrained groups to be statistically different across the overall models and *CASH 1*. The observed results falls in line with our alternate explanation in Section *2.2.4* above and suggest that the higher level of monitoring of firms by external parties such as the S&P and the payment of dividends (that reduce cash resources available at managers' discretion) possibly reduce the audit effort required for cash holdings in these firms. By contrast the results for firms which are financially constrained such as unrated firms or dividend-non-paying firms suggest that they are subject to lower levels of monitoring and possess higher levels of cash at managers' discretion and as a result elevate the level of audit effort required of cash holdings.

4.2.4 Test of cash holdings and hedging needs

Columns 9 and 10 of Table 5 present the results for the effects on cash holding on audit fees in the context of firms' hedging needs. We observe the coefficients of *CASH 1* are positive

and significant for firms with low hedging needs (Column 9; Coefficient = 0.252; p<0.01) but insignificant for firms with high hedging needs. In unreported tables, the tests of difference of coefficients across low and high hedging needs groups statistically differ with each across the overall models and *CASH 1*. A 1 standard deviation increase in *CASH 1* is associated with a 5.2% increase in *LAF* for firms with low hedging needs. This is consistent with our arguments in Section *2.2.4* and suggests that hedging needs mitigate the agency costs-based audit pricing of cash holdings.

---Insert Table 5 about here---

4.2.5 Test of cash holdings, financial constraints and hedging needs

The equations in Table 6 are estimated following our baseline *Model 1* (specified above) and for brevity, here we only report the coefficients of *CASH 1*.[31] Table 6 presents the results for the effects of cash holdings on audit fees, where we partition the sample according to (1) financially constrained; with high or low hedging needs and (2) financially unconstrained; with high or low hedging needs. The regressions results reveal positive significant coefficients (minimum p<0.05) for *CASH 1* in financially constrained firms with low hedging needs across all three proxies of financial constraints used (Column 2; S&P Paper Rating, Column 6; S&P Bond Rating and Column 10; KZ), while no significant results are observed in firms with high hedging needs (Column 1, 5 and 9). The results for financially unconstrained firms with low hedging needs indicate strongly positive coefficients (p<0.01) for *CASH 1* (Column 4; S&P Paper Rating, Column 8; S&P Bond Rating and Column 12; KZ). No significant results are observed for *CASH 1* in firms with high hedging needs (Column 3; S&P Paper Rating, Column 7; S&P Bond Rating and Column 11; KZ). Our unreported tests for the difference of coefficients across financially constrained firms with high and low hedging needs indicates that the coefficients are statistically different across the overall models and CASH 1. Similarly our test of difference of coefficients across financially unconstrained firms with high and low hedging needs shows that the coefficients are different across the overall models and for *CASH 1*. On the basis of these results, it is clear that the cash holdings-audit fees effects are more pronounced

[31] The determinants of the audit fee regression consist of *CASH 1, CASH FLOW 1, SIZE, DEBT, SEGMENTS, AR, INV, DOMESTIC INCOME, FOREIGN INCOME, TAX REPATRIATION COSTS, CASHETR, ZSCORE, BIG4, FISCAL, LNAF, REPURCHASE, GROWTH OPP, R&D, CAPEX, ACQUISITION, DACC, LITIGATION, INDUSTRY SIGMA* as well as year and industry indicator variables.

for financially constrained and unconstrained firms with low hedging needs. At the same time, these findings suggest that the agency costs attributable to cash holdings is overshadowed by the potential usage of cash for financing and investing purposes in financially constrained firms with hedging needs and in financially unconstrained firms with high hedging needs and, as a result, this weakens the cash holdings-audit fees association. Viewed collectively, one inference that can be drawn from the results in Sections *4.2.3* and *4.2.4* above and the results in this section is that the hedging needs criteria have a stronger influence than financial constraints on the cash holdings-audit fees association.[32]

---Insert Table 6 about here---

4.2.6 Test of cash holdings, growth opportunities and corporate governance quality

For brevity, all the regression results in Table 7 report the coefficients of *CASH 1* and *CASH 1*G-INDEX* only.[33] In column 1 of Table 7 the coefficient of *CASH 1*G-INDEX* is positively significant (Coefficient = 0.103; $p<0.05$) and reveals a directional finding where corporate governance quality intensifies the cash holdings-audit fees effect. The observed results suggest that higher quality governance demands higher quality audit and as a result requires more audit testing or effort to allay concerns over the agency costs of cash holdings, thus raising audit fees. Columns 2 and 3 of Table 7 report our results after partitioning the main sample into low and high growth opportunities firms. The results reveal a positive coefficient for *CASH 1*G-INDEX* in firms with low growth opportunities (Column 2; Coefficient = 0.170; $p<0.01$) but an insignificant coefficient for *CASH 1*G-INDEX* in firms with high growth opportunities. This indicates that shareholders take into consideration the upside benefit of cash holdings when faced with high growth opportunities and most likely lower their demand for higher audit quality, which if otherwise would cause the association between the interaction term *CASH 1*G-INDEX*

[32] The results obtained here (from an audit- perspective of cash holding) seem to differ structurally from evidence in the finance literature which finds that the propensity to hold higher levels of cash is dominated by the criteria of financial constraints as compared to hedging needs; i.e. (1) financially unconstrained firms does not show any propensity to hold higher levels of cash, regardless of whether they are facing low or high hedging needs and (2) only financially constrained firms facing high hedging needs show strong propensity to hold cash (see e.g. Acharya et al., 2007).

[33] The determinants of the audit fee regression consist of *CASH 1, CASH FLOW 1, SIZE, DEBT, SEGMENTS, AR, INV, DOMESTIC INCOME, FOREIGN INCOME, TAX REPATRIATION COSTS, CASHETR, ZSCORE, BIG4, FISCAL, LNAF, REPURCHASE, GROWTH OPP, R&D, CAPEX, ACQUISITION, DACC, LITIGATION, INDUSTRY SIGMA, G-INDEX, CASH 1*G-INDEX* as well as year and industry indicator variables. In an unreported analysis, we run our baseline regression by adding only *GINDEX* as an explanatory variable (without the *CASH*GINDEX* interaction term) and find the coefficient of *GINDEX* does not load significantly into our model. This observation is similar to that in some prior studies that report no significant association between *GINDEX* and audit fees (see Prawitt, Sharp, & Wood (2011)).

and audit fees to be positively significant. Due to the higher potential for non-value-maximizing activities in firms with low growth opportunities, higher shareholder rights or corporate governance quality (proxied *by G-INDEX*) entail greater audit effort and drive the cash holdings effect on audit fees upward. Our untabulated analyses show that the coefficients for the overall models and *CASH 1*G-INDEX* are different across the low and high growth opportunities groups.

---Insert Table 7 about here---

4.2.7 Test of cash holdings, financial constraints and hedging needs when controlling for corporate governance quality

Columns 4, 5, 8, 9, 12 and 13 of Table 7 present the coefficients of the interaction term between cash holdings and corporate governance quality for firms which are financially constrained; with high or low hedging needs. The results show the coefficient of *CASH 1*G-INDEX* is mostly insignificant in financially constrained firms with both high and low hedging needs. These test results most likely reflects shareholders' reduced demand for a high quality of audit of cash holdings in financially constrained firms with high or low hedging needs (possibly due to the anticipated financing needs) and translates into a weak joint corporate governance quality/cash holdings effect on audit fees. In other words, the joint effect of cash holdings and corporate governance on audit fees in financially constrained firms does not differ between those with high hedging needs and those with low hedging needs.

In columns 6, 7, 10, 11, 14 and 15 of Table 7, we present the results of the interaction term between cash holdings and corporate governance quality for firms which are financially unconstrained; with high or low hedging needs. In financially unconstrained firms with low hedging needs, the coefficients of *CASH 1*G-INDEX* are positive and significant (Column 7; S&P Paper Rating; Coefficient = 0.313; $p<0.01$, Column 11; S&P Bond Rating; Coefficient = 0.305; $p<0.01$ and Column 15; KZ; Coefficient = 0.167; $p<0.01$). We find no significant results for financially unconstrained firms with high hedging needs. This is consistent with the expectation that, when firms are financially unconstrained and have low hedging needs, higher shareholder rights or corporate governance quality would entail greater effort to audit

cash holdings, which in turn would increase audit fees. Our untabulated analyses show that the coefficients for the overall models and *CASH 1*G-INDEX* are different across financially constrained firms with high and low hedging needs and across financially unconstrained firms with high and low hedging needs.

4.3 Additional robustness check

To address any possible concerns regarding the quality of our data and analyses, in addition to the many robustness tests mentioned above, we conduct several further tests in this regard. First, in order to assess whether our results are consistent with other commonly used measures of cash holdings, we re-examine all the estimations using *CASH 2* and "ratio of cash and marketable securities minus cash flow to revenue", and the results remain unchanged. Second, we also examine our model with another popular measure of growth, i.e. yearly revenue growth, and obtain results that are consistent with our reported results. Third, to ensure that our results are not driven by extreme cash holding levels and are efficient under a wide-range of circumstances, we re-estimate all the regressions using the MM-estimators robust regression method proposed by Yohai (1987). Our unreported results using the MM-estimators are similar with those reported in Tables 4-7.

Fourth, we consider the robustness of our results to the timing effect of audit fees accrued in the period incurred vs. when the audit work is performed. The goal of accrual accounting is to account for the effects on an entity of transactions and other events and circumstances in the periods in which they occur, to the extent that those financial effects are recognizable and measurable (FASB, 1985, SFAC No. 6, para 145). Since the rationale for recording audit fees is to do so only if the service has been performed, some audit firms could record their audit fees in the subsequent period. In reality, this practice varies between audit firms with some accruing the audit fees in the period incurred and some recognizing it in the period performed, albeit all firms accrue fees incurred in connection with planning the audit and preliminary procedures for the year under audit. The impact of these two practices in accruing audit fees on the total audit fees for a particular year could be immaterial on a revolving basis, considering the fact that yearly audit fees are fairly stable for any given firm. Nonetheless, we give benefit of the doubt to the

possible timing effect of audit fees accruals and re-examine all the regressions using the lead-one-year of LAF (LAF_{t+1}) instead of (LAF_t) as the dependent variable and find our results remain unchanged. Fifth, given that industry classification could most likely be a significant factor in the determination of audit fees, we also create an industry-adjusted natural log of audit fees measure. To do this, we compute the median levels of *LAF* within the two-digit SIC codes and the industry-adjusted measure is calculated as the firm's variable minus the median industry level of *LAF*. We then re-estimate all our regressions by replacing the natural log of audit fees with the industry-adjusted natural log of audit fees and find our results remain the same as the results reported above.

Next, we assess the robustness of the proxies used in our study (and thus our results) to other commonly used proxies of financial constraints in prior studies, specifically size of firms (Denis and Sibilkov, 2010). Since smaller firms are younger and more vulnerable to capital market imperfections, we next rank firms' size based on their book value of total assets. Similar to the approach of prior studies (Acharya et al., 2007; Almeida et al., 2004), firms in the bottom and top deciles of size distribution are assigned to the financially constrained group and financially unconstrained group, respectively. In unreported tables, we find the use of firm size compared to the other four proxies of financial constraints does not produce consistent results for the test of the influence of corporate governance quality on the cash holding-audit fees effects in Table 7. While these inconsistencies seem to bear some resemblance to those reported by Acharya et al. (2007, p. 540) and reflect the intuition of some scholars that each measure of financial constraints picks up some unique information (Denis & Sibilkov, 2010, p. 252), we surmise it to be largely attributable to the uniqueness or peculiarity of the audit fee model. As pointed out by Hay et al. (2006) in their seminal meta-analysis paper on audit fees literature, size is the single most critical explanatory variable in the audit fee model and positively accounts for approximately 70 percent of audit fee variation. As such, the use of size could be a noisy proxy of financial constraints in audit fee models, given that it is also the primary variable upon which audit fee is priced. These contrasting functions of size in the audit fee model could therefore reduce its effectiveness as a strong proxy of financial constraints. Nevertheless, the other three financial constraints proxies (together with the unreported tests using *DIVIDEND* as proxy of financial constraint) examined in this study do not suffer from similar issues. With four out of

the five proxies of financial constraints producing consistent results across all hypotheses, we are confident that we can conclude that the alternative proxies of financial constraints employed do not materially alter our presented results.

Throughout the study, we have observed the influence of cash holdings on audit fees using *CASH 1*. Excess cash is defined as the difference between actual cash and predicted normal cash and is the residual of a cash levels regression (Dittmar & Mahrt-Smith, 2007, p. 627).[34] Following prior finance literature that examines the agency costs of "excess" cash alongside cash holdings (e.g. Bates et al., 2009), we conduct our next series of robustness investigations where we re-examine all our reported hypotheses by substituting *CASH 1* with *EXCESS_CASH* as the dependent variable (but not reported). We find the re-examined hypotheses using *EXCESS_CASH* overall reveal results that are consistent with the results reported above, except for a few minor differences. The consistent findings using *CASH* and *EXCESS_CASH* suggest that auditors' response in terms of audit price is almost identical for the two measures of cash and reflects the moral hazards/importance attached to not only *CASH 1*, but also *EXCESS_CASH* in relation to firms' growth opportunities, financing constraints, hedging needs and corporate governance quality.

Next, we assess the robustness of our results to potential endogeneity in the sample. Modeling the relation between *CASH 1* and other variables such as non-audit fees with audit fees (*LAF)* could be problematic if there is an endogenous response from *CASH 1* and other variables to *LAF* because the possibility that *CASH* and other variables and *LAF* are jointly determined, could not be completely refuted. We acknowledge that the OLS regressions may not be able to fully account for possible endogeneity issues and follow Harford et al. (2008) and examine whether *CASH 1* is related to a firm's change in audit fees (ΔLAF). This provides evidence on the ability of a firm's cash holdings and other determinants of audit fees to predict future audit fees by controlling for the lagged value of the firm's *CASH 1*. We implement this analysis by

[34] The residual from regressing cash holdings on firm-specific characteristics represents a firm's excess cash. Following Dittmar and Mahrt-Smith (2007), the control variables for the cash regression are *LnCASH_NA, LnNA, FCF/NA, NWC/NA, Industry Sigma, REV_GROWTH, R&D/NA, Year indicators and Firm fixed effects*, where *Ln* is the natural logarithm, *NA* is Total Assets – *CASH; FCF* is Operating Income minus Interest minus Taxes; NCW is Current Assets minus Current Liabilities minus *CASH; Industry Sigma* is industry average of prior 10-year standard deviation of *FCF/NA; REV_GROWTH* is three-year lagged sales growth*;* and *R&D* is R&D expenditure. Our results remain robust when we substitute *NA* with Total Assets in the cash holding regression. See Dittmar and Mahrt-Smith (2007) for full details and a discussion on the excess cash estimation method.

adding the lagged *CASH 1* to represent its historical value and other determinants of the audit fee model and by doing so we control for the endogenous choice.[35] [36] Our untabulated regression results using this approach are consistent with those reported in Tables 4–7. Similarly, using this approach, we also find our results remain unchanged when we substitute *CASH 1* with *EXCESS_CASH.* Despite these efforts, we cannot claim to have fully resolved the issue of endogeneity given the limitation of these estimations in that it is not capable to fully eliminate the issue of endogenity.

Finally, we present the present the plots of average *LAF*, *CASH 1* and the ratio of cash and marketable securities to total assets (*CASH*) from 2000 to 2012. Since all our regressions in this study include year dummies, the time trends in *LAF* and *CASH 1* are removed when estimating the coefficients. Therefore, the coefficient on *CASH 1* captures only the cross-sectional relationship between *LAF* and *CASH 1*. In order to draw a conclusion from a time-series perspective, we plot the average *LAF* and *CASH 1* against year in Figure 1 to provide some visual sense. The average *CASH* plot is also presented here for readers to visualize the differences between *CASH* (which is a widely used measurement of cash holdings in the finance literature), with *CASH 1* (which is one of the cash holdings measure adopted in our study to specifically capture the incremental effect of net cash holdings *(CASH 1)* on audit fees. As mentioned earlier, our results remain unchanged if we replace *CASH 1* with *CASH* in our regressions. We see that average *LAF*, *CASH 1* and *CASH* are all showing an increasing trend from 2000 to 2010, except around the years 2006 to 2009; i.e. around the period during the global financial crisis in 2008 and 2009. Average *LAF* seem to increase again after 2010 but *CASH 1* and *CASH* experience slight drop from the year 2010 to 2012.

---Insert Figure 1 about here---

35 The use of the lagged one-year values of variables to mitigate endogeneity concerns is also consistent with the approach of other studies (e.g. Hill et al., 2010).

[36] Specifically we our alter our baseline *Model 1* and employ the following estimation; $\Delta LAF = b0 + b1CASH\ 1_{(t-1)} + b2SIZE_{(t)} + b3DEBT_{(t)} + b4SEGMENTS_{(t)} + b5AR_{(t)} + b6INV_{(t)} + b7ROA_{(t)} + b8DOMESTIC\ INCOME + b9FOREIGN\ INCOME + b10TAX\ REPATRIATION\ COSTS + b11CASHETR + b12ZSCORE + b13BIG4 + b14FISCAL + b15LNAF + b16DIVIDEND + b17REPURCHASE + b18GROWTH\ OPP + b19R\&D + b20CAPEX + b21ACQUISITION + b22DACC + b23LITIGATION + b24INDUSTRY\ SIGMA + YEAR\ INDICATORS + SIC\ INDICATORS + \varepsilon$; *where* $\Delta LAF = LAF_{(t)} - LAF_{(t-1)}$.

5. Conclusions

Based on analyses of a large sample of data on public firms in the U.S. for the period 2000–2012, this study provides empirical evidence for the relation between audit fees and cash holdings. First, we find that cash holdings positively influences audit fees, which is in line with agency costs explanations. We also specifically find that cash holdings exert a stronger effect on audit fees in firms with low growth opportunities and after the inclusion of corporate governance quality these results remain consistent. In our examination of the influence of financial constraints on the impact of cash holdings on audit fees, we find opposing effects depending on whether the firms are financially constrained or unconstrained. Specifically, firms that are financially unconstrained do not experience a positive cash holdings-audit fees effect. Next, we find firms with high hedging needs do not experience a positive cash holdings-audit fees effect. Based on recent studies that suggest the importance of cash holdings depends on whether firms are financially constrained and have high hedging needs, our results show that cash holdings affect audit fees differently (1) in constrained firms with low hedging needs or high hedging needs and (2) in unconstrained firms with low or high hedging needs. Finally, we show that corporate governance quality exerts different influences in relation to audit pricing of cash holdings under different combinations of financial constraints and hedging needs. Our evidence shows that while audit fees vary positively with cash holdings, they can be explained less significantly under certain firm characteristics.

We contribute to the ongoing debate on the growing cash piles of U.S. firms by documenting auditors' response to this issue in terms of audit fees. Holding other factors constant, our results are comparable with those in the literature which show the agency costs of firms' cash resources increase audit risk and in turn audit effort and fees. We also find that growth opportunities, financial constraints, hedging needs and the corporate governance quality influence the cash holdings-audit fees relationship. In other words, our findings suggest that concerns over the agency costs of cash holdings, which are reflected in audit fees, is either offset or intensified by firms' levels of financing needs, hedging needs and corporate governance quality. These findings also appear to show that the reaction of audit fees to cash holdings corresponds in some ways with that reported in the finance literature in relation to the importance and implications of cash holdings according to firms' different financial conditions.

Our results should be considered with the following limitations in mind. The sample for this study draws from U.S. data and hence the results may not be generalizable to other countries where the severity of agency conflicts and efficacy of capital markets could be different from that of the U.S. Second, our study should be read bearing in mind the caveat that our sample of *G-INDEX* data draws from the Gompers et al. (2003) index (http://finance.wharton.upenn.edu//~metrick/data.htm) and thus the generalizability of our results from the estimations involving corporate governance quality might be somewhat limited, given the reduced sample used. Third, our sample period covers the years 2000–2012, and thus the results may not be generalizable to earlier years.

To conclude, there is ample opportunity for future research to advance the understanding of the issues we have examined in this study. One of the most obvious suggestions would be to test the effect of cash holdings on audit fees around the world because prior studies (see e.g. Pinkowitz et al. (2006)) find that differences in the intensity of agency problems across countries plays an important role in firms' financial outcomes. Another avenue of research would be to examine the influence of other dimensions of corporate governance, apart from shareholder rights or anti-takeover or provisions, in the context of the issues we have tested in this study. This could possibly yield interesting findings given prior audit literature (see e.g. Abbott et al., 2003; Carcello, et al., 2002; Goodwin-Stewart and Kent, 2006; Tsui et al., 2001) that shows corporate governance factors affect audit fees.

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Table 1
Sample characteristics (2000 – 2012)

All firms covered by Audit Analytics	125,332
All firms covered by Audit Analytics and Compustat	83,874
Firms from financial services (SIC 6000–6999)	(23,485)
Firms with missing data, nonpositive values of total book assets and cash holding and auditor changes	(32,137)
Final sample	28,252
Reduced sample to control for corporate governance quality	3,889

Table 2
Variable definitions

Variable	Definition
LAF	Natural log of total audit fees for fiscal year measured in thousands of dollars
CASH 1	Ratio of cash and marketable securities minus cash flow to total assets (where cash flow equal earnings after interest, dividends and taxes but before depreciation)
CASH 2	Ratio of cash and marketable securities minus cash flow to total net assets (where net assets equal total assets minus cash and marketable securities)
CASH FLOW 1	Ratio of earnings after interest, dividends and taxes but before depreciation to total assets
CASH FLOW 2	Ratio of earnings after interest, dividends and taxes but before depreciation to net assets
SIZE	Natural log of total assets measured in millions of dollars
DEBT	Ratio of total debt to total assets
SEGMENTS	Number of segments
AR	Ratio of accounts receivable to total assets
INV	Ratio of inventory to total assets
DOMESTIC INCOME	Ratio of domestic pretax income to total assets
FOREIGN INCOME	Ratio of foreign pretax income to total assets
TAX REPATRIATION COSTS	Tax repatriation costs is computed by subtracting foreign taxes paid from the product of a firm's foreign pretax income and the U.S. statutory tax rate and scaled by total assets, as described in Foley et al (2007).
CASHETR	Ratio of cash taxes paid to pretax income over a five-year period
LNAF	Natural log of non-audit fees measured in thousands of dollars
GROWTH_OPP	(Book value of total assets - book value of equity + market value of equity)/ Book value of total assets
DIVIDEND	1 in year *t* if a firm pays dividends, 0 otherwise
REPURCHASE	(Upper quartile purchase of common and pref. shares)/ total assets = 1, otherwise 0
ZSCORE	Bankruptcy prediction score less than 3 = 1, otherwise 0
FISCAL	Fiscal year end = December 31, otherwise 0
BIG4	Deloitte, Ernst and Young, KPMG, and PricewaterhouseCoopers = 1, otherwise 0
R&D	Ratio of research and development expenditures to total assets
CAPEX	Ratio of capital expenditures to total assets
ACQUISITION	Ratio of acquisition expenditures to total assets
INDUSTRY SIGMA	Industry average of prior ten-year standard deviation of cash flows, scaled by total assets
DACC	Absolute value of discretionary accruals estimated from the Jones (1991) model, augmented with return on assets as suggested by Kothari, Leone, & Wasley (2005).
LITIGATION	A firm's litigation initiation year and the consecutive three years is denoted as 1 and 0 if otherwise
S&P PAPER RATING	Firms that do not have their short-term debt rated by S&P's or their debt is in default are classified as financially constrained, or otherwise classified as financially unconstrained.
S&P BOND RATING	Firms that do not have their long-term debt rated by S&P's or their debt is in default are classified as financially constrained, or otherwise classified as financially unconstrained.
KZ	KZ Index (Kaplan-Zingales Index), based on the five-factor model as described in Lamont, Polk and Saa-Requejo (2001), where firms in the top 33% of all firms ranked in the KZ Index are classified as constrained and the bottom 33% as "unconstrained.
HEDGING NEEDS	The correlation between industry growth (firm-year median sales growth over the following three years for firms operating in the same two-digit SIC industry) and each firm's cash flow from operations (as measured in Denis and Sibilkov, 2010). Firms which show a negative and significant correlation of -0.2 and below are classified as firms having high hedging needs and firms with a positive and significant correlation of 0.2 and above are classified as having low hedging needs.
G-INDEX	Corporate Governance Index (derived from G score by Gompers et al., 2003). Categorical variable indicating 10 when G is ≤ 5, representing the strongest shareholder rights, and indicating 1when *G* ≥ 14, representing weakest shareholder rights.
YEAR INDICATORS	Indicator variables that equal 1 if the data are from the each of the fiscal years from 2000-2012, respectively, and 0 otherwise; and
SIC INDICATORS	Indicator variables that equal 1 if the observation is from the each of the two-digit Standard Industrial Classification (SIC) number and 0 otherwise.

Table 3
Descriptive statistics and univariate comparisons of variables

			GROWTH_OPP		FINANCIAL CONSTRAINT (FC) CRITERIA						HEDGING NEEDS	
					S&P PAPER RATING (FC)		S&P BOND RATING (FC)		KZ (FC)			
		1	2	3	4	5	6	7	8	9	10	11
Variables		Total	Low	High	Unconstrained	Constrained	Unconstrained	Constrained	Unconstrained	Constrained	Low	High
Number of observations		28,252	14,225	14,027	4,527	23,725	9,512	18,740	10,324	10,318	2,768	2,881
LAF	Mean	13.363	13.114	13.631	15.109	13.314	14.634	13.315	14.083	13.802	13.356	13.237
	Median	13.471	13.254	13.682	15.464	13.582	14.406	13.234	14.142	13.874	13.428	13.350
	SD	1.557	1.412	1.688	1.355	1.507	1.282	1.505	1.638	1.347	1.577	1.412
	Mean difference	-	-0488***		1.795***		1.319***		0.281***		0.119**	
CASH 1	Mean	0.178	0.152	0.204	0.108	0.215	0.125	0.207	0.145	0.202	0.214	0.153
	Median	0.103	0.095	0.163	0.053	0.146	0.067	0.156	0.124	0.181	0.184	0.117
	SD	0.209	0.233	0.242	0.126	0.269	0.150	0.219	0.110	0.147	0.261	0.198
	Mean difference		-0.052***		-0.107***		-0.082***		-0.057***		0.061***	
CASH 2	Mean	0.467	0.314	0.578	0.272	0.514	0.378	0.501	0.446	0.483	0.591	0.429
	Median	0.213	0.481	0.612	0.360	0.588	0.453	0.491	0.325	0.569	0.455	0.308
	SD	0.225	0.806	1.075	0.186	0.781	0.221	0.836	0.210	0.619	0.697	0.255
	Mean difference	-	-0.264***		-0.242***		-0.123***		-0.037***		0.162***	
SIZE	Mean	6.942	6.620	6.953	9.742	6.751	9.016	6.623	8.962	7.413	6.781	6.624
	Median	6.797	6.512	7.142	11.102	7.327	9.487	6.621	9.174	7.249	6.812	6.636
	SD	2.312	2.007	2.450	3.043	2.216	2.495	2.625	2.316	2.523	2.712	2.516
	Mean difference	-	-0.333***		2.991**		2.393***		1.549***		0.157***	
DEBT	Mean	0.288	0.156	0.402	0.328	0.285	0.432	0.256	0.405	0.215	0.284	0.305
	Median	0.174	0.087	0.328	0.381	0.187	0.370	0.146	0.515	0.123	0.174	0.186
	SD	0.330	0.174	0.364	0.153	0.328	0.237	0.329	0.218	0.242	0.321	0.360
	Mean difference	-	-0.246***		0.043***		0.176***		0.190***		-0.021***	
SEGMENTS	Mean	2.32	1.890	2.544	6.557	2.435	4.461	2.322	4.302	2.163	2.542	2.492
	Median	2.51	1.076	1.214	2.333	1.337	1.556	1.231	2.122	1.534	1.155	1.121
	SD	1.32	2.593	3.584	6.347	3.622	4.384	3.175	4.374	4.315	3.745	3.586
	Mean difference	-	-0.654		4.122***		2.139***		2.139***		0.050**	
AR	Mean	0.148	0.134	0.139	0.115	0.136	0.109	0.134	0.116	0.174	0.133	0.151
	Median	0.114	0.108	0.112	0.086	0.104	0.081	0.106	0.094	0.162	0.107	0.144
	SD	0.156	0.133	0.145	0.112	0.134	0.114	0.139	0.094	0.131	0.134	0.141
	Mean difference	-	-0.005**		-0.021***		-0.025***		-0.058***		-0.018***	
INV	Mean	0.124	0.125	0.121	0.075	0.126	0.088	0.125	0.118	0.145	0.127	0.162
	Median	0.102	0.080	0.088	0.033	0.081	0.043	0.085	0.070	0.123	0.121	0.1659
	SD	0.156	0.149	0.145	0.105	0.142	0.124	0.151	0.104	0.129	0.144	0.1490
	Mean difference	-	0.004		-0.051***		-0.037***		-0.027***		-0.034***	

Table 3 (continued)

			GROWTH_OPP		FINANCIAL CONSTRAINT (FC) CRITERIA						HEDGING NEEDS	
					S&P PAPER RATING (FC)		S&P BOND RATING (FC)		KZ (FC)			
		1	2	3	4	5	6	7	8	9	10	11
Variables		Total	Low	High	Unconstrained	Constrained	Unconstrained	Constrained	Unconstrained	Constrained	Low	High
LNAF	Mean	11.225	11.075	11.360	12.804	11.171	12.149	11.087	11.755	11.660	11.281	11.061
	Median	11.239	11.001	11.154	13.051	11.126	12.215	10.981	11.814	11.734	11.110	10.843
	SD	2.005	1.87	2.134	2.276	1.901	2.135	1.876	2.134	2.148	1.676	1.731
	Mean difference	-	-0.285***		1.633***		1.062***		0.095*		0.220***	
GROWTH_OPP	Mean	2.110	-	-	1.919	2.061	1.821	1.914	1.427	2.761	1.960	1.612
	Median	0.736	-	-	0.940	0.725	0.783	0.721	0.676	1.249	0.734	0.697
	SD	4.434	-	-	3.151	3.804	3.280	3.937	2.512	3.667	3.981	3.368
	Mean difference		-		-0.142		-0.093***		-0.1334		0.348***	
DOMESTIC INCOME	Mean	0.015	0.036	0.007	0.028	0.010	0.032	0.008	0.041	0.002	0.029	0.014
	Median	0.026	0.028	0.002	0.029	0.012	0.029	0.012	0.039	0.008	0.021	0.018
	SD	0.061	0.044	0.043	0.047	0.022	0.034	0.062	0.025	0.092	0.043	0.051
	Mean difference	-	0.029***		0.018***		0.024***		0.0439**		0.015***	
FOREIGN INCOME	Mean	0.051	0.084	0.047	0.056	0.031	0.071	0.038	0.097	0.026	0.066	0.047
	Median	0.001	0.060	0.039	0.044	0.023	0.062	0.054	0.071	0.035	0.051	0.039
	SD	0.022	0..072	0.064	0.028	0.491	0.041	0.147	0.039	0.128	0.089	0.074
	Mean difference	-	0.037***		0.025***		0.033***		0.071***		0.019***	
TAX REPATRIATION COSTS	Mean	0.001	0.002	0.000	0.002	0.001	0.002	0.002	0.003	0.001	0.001	0.000
	Median	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.000
	SD	0.005	0.005	0.002	0.001	0.003	0.003	0.001	0002	0.002	0.002	0.001
	Mean difference	-	0.002***		0.001***		0.000*		0.002***		0.001***	
CASHETR	Mean	0.215	0.219	0.212	0.213	0.215	0.226	0.212	0.211	0.223	0.212	0.230
	Median	0.228	0.237	0.210	0.222	0.204	0.231	0.204	0.214	0.218	0.215	0.224
	SD	0.327	0.422	0.254	0.230	0.205	0.345	0.227	0.244	0.220	0.227	0.252
	Mean difference	-	0.007		-0.002		0.024*		-0.005*		0.018*	
CASH FLOW 1	Mean	0.089	0.095	0.061	0.090	0.046	0.081	0.035	0.052	0.031	0.071	0.045
	Median	0.073	0.099	0.050	0.086	0.024	0.068	0.041	0.094	0.016	0.057	0.023
	SD	0.062	0.045	0.074	0.052	0.038	0.034	0.063	0.194	0.041	0.081	0.034
	Mean difference	-	0.034***		0.044***		0.046***		0.021***		0.026***	
CASH FLOW 2	Mean	0.107	0.114	0.082	0.114	0.092	0.126	0.084	0.109	0.095	0.107	0.099
	Median	0.056	0.168	0.106	0.142	0.046	0.068	0.032	0.057	0.039	0.068	0.043
	SD	0.065	0.087	0.054	0.061	0.161	0.151	0.056	0.124	0.032	0.154	0.087
	Mean difference	-	0.032***		0.022***		0.042***		0.014***		0.008***	

Table 3 (continued)

			GROWTH_OPP		FINANCIAL CONSTRAINT (FC) CRITERIA						HEDGING NEEDS	
					S&P PAPER RATING (FC)		S&P DEBT RATING (FC)		KZ (FC)			
		1	2	3	4	5	6	7	8	9	10	11
Variables		Total	Low	High	Unconstrained	Constrained	Unconstrained	Constrained	Unconstrained	Constrained	Low	High
R&D	Mean	0.031	0.042	0.025	0.018	0.052	0.022	0.039	0.024	0.031	0.021	0.036
	Median	0.000	0.001	0.000	0.004	0.023	0.003	0.011	0.002	0.012	0.003	0.001
	SD	0.050	0.042	0.061	0.023	0.037	0.038	0.041	0.029	0.010	0.015	0.038
	Mean difference	-	0.017**		-0.034***		-0.017***		-0.007***		0.015***	
CAPEX	Mean	0.061	0.060	0.063	0.062	0.064	0.060	0.063	0.056	0.062	0.064	0.059
	Median	0.031	0.024	0.029	0.032	0.041	0.028	0.057	0.037	0.046	0.034	0.046
	SD	0.087	0.052	0.035	0.043	0.067	0.034	0.093	0.041	0.062	0.095	0.037
	Mean difference	-	-0.003***		-0.002**		-0.003***		-0.006***		0.005***	
ACQUISITION	Mean	0.035	0.045	0.031	0.036	0.029	0.038	0.030	0.041	0.034	0.046	0.031
	Median	0.000	0.001	0.000	0.002	0.000	0.002	0.000	0.002	0.001	0.031	0.001
	SD	0.053	0.061	0.072	0.067	0.023	0.022	0.059	0.069	0.074	0.085	0.038
	Mean difference	-	0.014***		0.007***		0.008***		0.007***		0.015***	
DACC	Mean	0.535	0.428	0.732	0.324	0.698	0.482	0.709	0.443	0.618	0.416	0.809
	Median	0.122	0.342	0.542	0.425	0.724	0.586	0.619	0.311	0.546	0.390	0.651
	SD	0.493	0.631	1.245	0.831	1.507	0.682	0.935	0.419	0.957	0.685	0.778
	Mean difference	-	-0.304***		-0.374***		-0.227***		-0.175***		-0.393***	
INDUSTRY	Mean	0.051	0.031	0.067	0.023	0.085	0.025	0.069	0.043	0.106	0.061	0.059
SIGMA	Median	0.047	0.049	0.072	0.032	0.041	0.051	0.094	0.067	0.086	0.086	0.041
	SD	0.041	0.109	0.087	0.055	0.132	0.014	0.071	0.029	0.057	0.032	0.058
	Mean difference	-	-0.036***		-0.062***		-0.044***		-0.063***		0.002	
Independent (categorical)												
DIVIDEND		33%	26%	55%	58%	19%	62%	25%	51%	25%	35%	31%
REPURCHASE		24%	25%	51%	27%	15%	35%	21%	32%	22%	36%	14%
ZSCORE		56%	60%	51%	55%	56%	51%	63%	44%	57%	54%	62%
FISCAL		65%	68%	66%	67%	68%	66%	69%	65%	60%	66%	65%
BIG4		77%	64%	81%	63%	22%	72%	26%	63%	31%	54%	17%
LITIGTION		14%	12%	9%	10%	15%	11%	12%	10%	16%	8%	13%

This table reports summary statistics for the sample, which consists of nonfinancial firm-years from 2000 to 2012. We classify the samples into Low and High *GROWTH OPP* groups based on median of *GROWTH OPP* for each year. Samples are classified as Constrained as per S&P Paper Rating and S&P Debt Rating framework if they have outstanding debt in a particular year, or have never had their debt rated or the rating of their debt is in the default "D" or statutory default "SD" category. On the flipsdide, the samples are classified as Unconstrained if their debt is rated, or their debt is zero, or their rating is not in the default "D" or statutory default "SD" category. We also classify the samples in the top 33% and bottom 33% based on the KZ Index score as Constrained and Unconstrained, respectively. Samples are classified based on the correlation between cash flow and investment opportunities as Low HEDGING NEEDS if it is positive, significant and is -0.2 and above and as High HEDGING NEEDS if it is negative, significant and of 0.2 and below. This table also presents difference-in-means estimates. ***,**, and* denote statistical significance at the 1%, 5%, and 10% level respectively. SD is standard deviation. See Table 2 for variable definitions.

Table 4
Regression analyses of audit fees on cash holding

Model	Exp	1		2	
Independent variables	sign	Coef.	*t*-stat.	Coef.	*t*-stat.
INTERCEPT	?	8.754***	*27.24*	8.773***	*29.22*
CASH 1	+	0.171**	*2.26*	-	
CASH 2	+	-		0.069**	*2.08*
CASH FLOW1	+	0.149	*1.74**	-	
CASH FLOW2	+	-		0.043*	*1.65*
SIZE	+	0.115***	*45.15*	0.113***	*43.63*
DEBT	+	0.089*	*1.83*	0.075	*1.57*
SEGMENTS	+	0.015***	*6.55*	0.015***	*6.63*
AR	+	0.968***	*6.59*	0.898***	*6.23*
INV	+	0.443***	*3.15*	0.391***	*2.88*
DOMESTIC INCOME	-	-0.455***	*-3.53*	-0.531***	*-4.2*
FOREIGN INCOME	+	1.652**	*2.06*	1.495**	*2.19*
TAX REPATRIATION COSTS	?	2.612	*0.82*	2.770	*0.83*
CASHETR	?	0.009	*0.4*	0.004	*0.19*
ZSCORE	+	0.105***	*4.4*	0.129***	*5.45*
BIG4	+	0.074**	*2.18*	0.076**	*2.21*
FISCAL	+	0.002***	*3.25*	0.003***	*3.27*
LNAF	+	0.126***	*14.97*	0.127***	*15.11*
DIVIDEND	-	-0.068***	*-2.9*	-0.072***	*-3.07*
REPURCHASE	+	0.105***	*2.62*	0.109***	*2.64*
GROWTH OPP	+	0.009**	*2.53*	0.013***	*3.37*
R&D	?	0.296**	*2.04*	0.573***	*3.88*
CAPEX	?	-0.747***	*-4.03*	-0.885***	*-4.7*
ACQUISITION	?	-0.111	*-1.70**	-0.170*	*-1.81**
DACC	+	0.003	*2.11***	0.003**	*2.01*
LITIGATION	+	0.194	*5.77****	0.197	*5.86****
INDUSTRY SIGMA	?	0.005	*1.82**	0.007	*1.25*
YEAR INDICATORS		√		√	
SIC INDICATORS		√		√	
R^2		0.755		0.754	
N		28,252		28,252	

This table reports the regression results for the relationship between cash holdings and audit fees and consists of nonfinancial firm-years from 2000 to 2012. The dependent variable is the natural log of audit fees. The table reports the OLS coefficient estimates and *t*-statistics based on robust standard errors that are clustered by firm. ***,**, and* denote statistical significance at the 1%, 5%, and 10% level respectively. See Table 2 for variable definitions.

Table 5
Regression analyses for effects of growth opportunities; financial constraint; and hedging needs, by low and high groups

			FINANCIAL CONSTRAINT							
	GROWTH		S&P PAPER RATING (FC)		S&P BOND RATING (FC)		KZ (FC)		HEDGING NEEDS	
Model	1	2	3	4	5	6	7	8	9	10
Independent variables	Low	High	Unconstrained	Constrained	Unconstrained	Constrained	Unconstrained	Constrained	Low hedging	High hedging
INTERCEPT	8.398***	7.753***	8.544***	8.880***	10.261***	8.486***	8.982***	7.137***	8.683***	8.384***
	24.35	*28.93*	*21.21*	*20.5*	*34.6*	*21.85*	*35.71*	*16.12*	*39.35*	*32.66*
CASH 1	0.198**	0.075	0.109	0.241***	0.160	0.331***	0.105	0.183**	0.252***	0.104
	2.13	*0.52*	*0.7*	*3.69*	*0.76*	*3.86*	*1.75*	*2.56*	*2.85*	*0.91*
CASH FLOW 1	0.166	0.014	0.046	0.127	0.087	0.116*	0.081	0.199	0.194	0.035
	*1.8**	*1.36*	*0.72*	*1.76**	*1.48*	*1.81*	*1.04*	*1.64*	*0.86*	*1.25*
SIZE	0.119***	0.112***	0.122***	0.119***	0.117***	0.129***	0.121***	0.127***	0.117***	0.111***
	39.25	*28.5*	*12.62*	*36.3*	*20.35*	*45.95*	*23.8*	*24.5*	*43.3*	*15.1*
DEBT	0.157	0.088	0.056	0.196**	0.024	0.098**	0.076	0.133	0.094*	0.015
	1.6	*1.47*	*0.048*	*2.16*	*0.17*	*1.93*	*0.07*	*1.3*	*1.86*	*0.12*
SEGMENTS	0.009***	0.015***	0.017***	0.014***	0.014***	0.014***	0.016***	0.014***	0.015***	0.012**
	3.09	*5.14*	*3.21*	*6.23*	*3.12*	*6.22*	*3.33*	*3.64*	*6.52*	*2.75*
AR	0.741***	0.813	0.538	0.925***	0.371	0.927***	0.305	0.903**	0.973***	0.422
	4.32	*3.15****	*1.84**	*6.13*	*1.2*	*6.04*	*0.94*	*1.99*	*6.46*	*1.25*
INV	0.468***	0.332**	0.336**	0.417***	0.183**	0.430***	0.301**	0.652***	0.611***	0.103
	2.77	2.01	2.13	2.91	2.38	2.98	2.54	3.67	3.83	0.3
DOMESTIC	-0.400**	-0.439**	-0.37**	-0.604***	-0.457***	-0.508***	-0.371**	-0.561**	-0.530***	-0.225*
INCOME	*-2.45*	*-2.48*	*-2.01*	*-4.43*	*-2.86*	*-4.35*	*-2.08*	*-3.11*	*-3.15*	*-1.72*
FOREIGN INCOME	1.080	2.202**	1.2491**	1.834***	1.239**	1.517***	1.481**	1.786	2.128**	1.708
	1.02	*1.99*	*2.53*	*2.84*	*2.23*	*2.78*	*2.29*	*3.14****	*2.14*	*0.91*
TAX REPATRIATION	3.139	2.253	2.101	3.714	2.009	2.594	2.551	3.131	3.354	2.877
COSTS	*0.8*	*0.52*	*1.42*	*0.86*	*0.71*	*0.8*	*1.04*	*0.57*	*0.87*	*0.37*
CASHETR	0.005	0.016	0.005	0.008	-0.011	0.002	0.057	0.026	0.010	0.005
	0.17	*0.56*	*0.83*	*0.34*	*-0.19*	*0.08*	*1.1*	*0.61*	*0.43*	*0.09*
ZSCORE	0.109***	0.127***	0.086**	0.128***	0.104**	0.138***	0.104**	0.216***	0.110***	0.076**
	3.5	*3.58*	*2.68*	*4.34*	*1.99*	*4.32*	*2.15*	*4.04*	*4.34*	*2.16*
BIG4	0.078***	0.083**	0.062**	0.112***	0.071**	0.130***	0.068**	0.097***	0.053**	0.170**
	3.01	*2.46*	*2.04*	*3.68*	*2.0*	*3.62*	*2.42*	*3.01*	*2.45*	*2.61*
FISCAL	*0.004****	*0.002****	*0.006***	*0.012***	*0.009***	*0.014****	*0.017***	*0.003***	*0.006***	*0.038****
	3.27	*3.15*	*2.12*	*2.21*	*2.21*	*3.12*	*2.5*	*2.59*	*2.28*	*3.48*
LNAF	*0.126****	*0.142****	*0.126***	*0.089****	*0.108****	*0.116****	*0.110****	*0.113****	*0.136****	*0.121****
	11.04	*11.28*	*5.09*	*2.41*	*6.32*	*13.9*	*6.93*	*7.25*	*14.25*	*5.18*

Table 5 (continued)

	GROWTH		FINANCIAL CONSTRAINT						HEDGING NEEDS	
			S&P PAPER RATING (FC)		S&P BOND RATING (FC)		KZ (FC)			
Model	1	2	3	4	5	6	7	8	9	10
Independent variables	Low	High	Unconstrained	Constrained	Unconstrained	Constrained	Unconstrained	Constrained	Low hedging	High hedging
DIVIDEND	-0.095***	-0.053	-	-	-	-	-	-	-0.080***	-0.004
	-3.4	*-1.46*							*-3.19*	*-0.17*
REPURCHASE	0.253	0.184***	0.105**	0.097	0.219***	0.136	0.153**	0.044	0.192***	0.128
	1.54	*2.94*	*2.21*	*1.2*	*3.19*	*1.03*	*2.42*	*0.05*	*2.89*	*1.65*
GROWTH OPP	0.186***	0.007*	0.008***	0.005**	0.015***	0.007**	0.013**	0.011*	0.008**	0.028*
	3.07	*1.66*	*3.76*	*1.96*	*3.27*	*2.01*	*2.51*	*1.87*	*2.24*	*1.74*
R&D	0.266	0.279**	0.249	0.466**	0.218	0.349**	0.261	0.610**	0.573***	0.360*
	1.5	*2.26*	*1.75**	*2.15*	*0.93*	*2.49*	*1.24*	*2.74*	*3.75*	*1.74*
CAPEX	-0.683***	-1.010***	-0.786*	-0.808***	-0.672	-0.800***	-0.410	-1.060***	-0.649***	-1.061**
	-2.86	*-3.71*	*-1.72*	*-4.42*	*-1.45*	*-4.36*	*-0.67*	*-2.81*	*-3.23*	*-2.43*
ACQUISITION	-0.156	-0.312**	-0.219**	-0.087	-0.336*	-0.031	-0.225**	-0.090	-0.035	-0.561**
	-1.04	*-2.34*	*-2.13*	*-1.29*	*-1.86*	*-0.32*	*-1.91*	*-0.35*	*-0.37*	*-2.02*
DACC	0.004**	0.002**	0.006**	0.002*	0.012**	0.001	0.008**	0.003	0.002	0.005***
	3.45	*1.99*	*2.42*	*1.70*	*2.15*	*1.04*	*2.65*	*1.05*	*1.07*	*5.47*
LITIGATION	0.133	0.264	0.187	0.200	0.182	0.343	0.194	0.454	0.172	0.321
	*3.26****	*4.94****	*2.05***	*5.91****	*2.54****	*4.98****	*3.54*	*4.34****	*4.98****	*2.99****
INDUSTRY SIGMA	0.009	0.003	0.009**	0.006	0.057**	0.006	0.046***	0.007	0.005*	0.023
	1.45	*0.05*	*2.54*	*1.03*	*1.97*	*1.06*	*2.84*	*1.14*	*1.85*	*0.55*
YEAR INDICATORS	√	√	√	√	√	√	√	√	√	√
SIC INDICATORS	√	√	√	√	√	√	√	√	√	√
R^2	0.735	0.767	0.808	0.767	0.787	0.770	0.831	0.770	0.768	0.700
N	14,225	14,027	4,527	23,725	9,512	18,740	10,324	10,318	2,768	2,881

This table reports the regression results for the effect of growth opportunities; financial constraint; and hedging needs, by Low and High groups and consists of nonfinancial firm-years from 2000 to 2012. Regressions 1 and 2 contrast between Low and High GROWTH OPP groups, regressions 3 and 4 contrast between Unconstrained and Constrained groups as per S&P Paper Rating framework, regressions 5 and 6 contrast between Unconstrained and Constrained groups as per S&P Bond Rating framework, regression 7 and 8 contrast Unconstrained and Constrained groups as per KZ index and regressions 9 and 10 contrast between Low and High HEDGING NEEDS groups. We classify the samples into Low and High *GROWTH OPP* groups based on median of *GROWTH OPP* for each year. Samples are classified as Constrained as per S&P Paper Rating and S&P Debt Rating framework if they have outstanding debt in a particular year, or have never had their debt rated or the rating of their debt is in the default "D" or statutory default "SD" category. On the flipsdide, the samples are classified as Unconstrained if their debt is rated, or their debt is zero, or their rating is not in the default "D" or statutory default "SD" category. We also classify the samples in the top 33% and bottom 33% based on the KZ Index score as Constrained and Unconstrained, respectively. Samples are classified based on the correlation between cash flow and investment opportunities as Low HEDGING NEEDS if it is positive, significant and is -0.2 and above and as High HEDGING NEEDS if it is negative, significant and of 0.2 and below. The dependent variable is the natural log of audit fees. The table reports the OLS coefficient estimates and *t*-statistics based on robust standard errors that are clustered by firm. ***, **, and* denote statistical significance at the 1%, 5%, and 10% level respectively. See Table 2 for variable definitions.

Table 6
Evaluating cash holding sensitivities to audit fees by financial constraint criteria and hedging needs

	S&P PAPER RATING			
	Constrained		Unconstrained	
	High hedging (1)	Low hedging (2)	High hedging (3)	Low hedging (4)
CASH 1	-0.033	0.423***	-1.053	0.471***
	-0.94	*3.62*	*-1.06*	*4.68*
R^2	0.717	0.782	0.742	0.797
N	1,269	2,958	539	901
	S&P BOND RATING			
	Constrained		Unconstrained	
	High hedging (5)	Low hedging (6)	High hedging (7)	Low hedging (8)
CASH 1	-0.020	0.335***	-1.074	0.377***
	-0.81	*3.68*	*-1.49*	*4.08*
R^2	0.719	0.782	0.853	0.799
N	1.080	3,365	376	891
	KZ			
	Constrained		Unconstrained	
	High hedging (9)	Low hedging (10)	High hedging (11)	Low hedging (12)
CASH 1	0.150	0.199**	-0.260	0.26***
	0.51	*2.51*	*-1.22*	*3.22*
R^2	0.766	0.768	0.845	0.847
N	753	1,387	454	1,066

This table reports the regression results for the effect cash holding on audit fees based on the contrast across four firm types, i.e. based on the intersection of the level of financial constraints and the level of hedging needs (Constrained vs. Unconstrained and High hedging vs. Low hedging) and consists of nonfinancial firm-years from 2000 to 2012. Regressions 1-4 contrast four firm type groups; Constrained vs. Unconstrained as per S&P Paper Rating framework and High hedging vs. Low hedging, regressions 5-8 contrast four firm type groups; Constrained vs. Unconstrained as per S&P Bond Rating framework and High hedging vs. Low hedging and regressions 9-12 contrast four firm type groups; Constrained vs. Unconstrained as per KZ index and High hedging vs. Low hedging. The dependent variable is the natural log of audit fees. All the regression equations are identical to those estimated in Section *3.2*, except *DIVIDEND* (which is excluded) because it is also considered in the finance literature as a proxy of financial constraints. However to conserve space, we only report the coefficients of *CASH 1*. The table reports the OLS coefficient estimates and *t*-statistics based on robust standard errors that are clustered by firm. ***,**, and* denote statistical significance at the 1%, 5%, and 10% respectively. See Table 2 for variable definitions.

Table 7

Evaluating the moderating role of corporate governance quality on cash holding-audit fees relationship

	Overall	GROWTH	
	(1)	Low (2)	High (3)
CASH 1	1.166***	1.400***	1.339
	2.86	*3.26*	*1.27*
*CASH 1*G-INDEX*	0.103**	0.170***	0.045
	2.04	*3.2*	*0.56*
R^2	0.739	0.7364	0.781
N	3,889	1,943	1,946

S&P PAPER RATING

	Constrained		Unconstrained	
	High hedging (4)	Low hedging (5)	High hedging (6)	Low hedging (7)
CASH 1	-2.886**	0.804*	0.213	2.953***
	-2	*1.9*	*0.82*	*3.16*
*CASH 1*GINDEX*	0.102	0.090*	-0.252	0.313***
	0.49	*1.68*	*0.94*	*3.76*
R^2	0.777	0.751	0.743	30
N	438	1,596	357	417

S&P BOND RATING

	Constrained		Unconstrained	
	High hedging (8)	Low hedging (9)	High hedging (10)	Low hedging (11)
CASH 1	-3.002**	0.883**	-1.493	2.381**
	-2.04	*2*	*-1.2*	*2.11*
*CASH 1*G-INDEX*	0.125	0.097*	-0.225	0.305***
	0.57	*1.76*	*-1.21*	*3.13*
R^2	0.7782	0.750	0.785	0.896
N	501	1,543	282	423

KZ

	Constrained		Unconstrained	
	High hedging (12)	Low hedging (13)	High hedging (14)	Low hedging (15)
CASH 1	-0.547	-1.246	0.742	1.232**
	-0.03	-0.61	1.04	2.35
*CASH 1*G-INDEX*	-0.233	0.186	-0.287	0.167***
	-0.06	0.59	-1.4	3.94
R^2	0.758	0.817	0.735	0.814
N	278	942	254	753

This table reports the regression results for the moderating role of corporate governance quality on the cash holding-audit fees relationship and consists of nonfinancial firm-years from 2000 to 2006.

The original equation is Section 3.2 is expanded as follows for all the regressions in Table 7:

*LAF = b0 + b1CASH 1 + b2CASH FLOW + b3SIZE + b4DEBT + b5SEGMENTS + b6AR + b7INV + b8DOMESTIC INCOME + b9FOREIGN INCOME + b10TAX REPATRIATION COSTS + b11CASHETR + b12ZSCORE + b13BIG4 + b14FISCAL + b15LNAF + b16REPURCHASE + b17GROWTH OPP + b18R&D + b19CAPEX + b20ACQUISITION + b21DACC + b22LITIGATION + b23INDUSTRY SIGMA + b24G-INDEX + b25 CASH 1*G-INDEX + YEAR INDICATORS + SIC INDICATORS + ε*.

Regression 1 reports the regression results for the overall sample while regressions 2 and 3 contrast between Low and High GROWTH OPP groups. Regressions 4-7, 8-11 and 12-15 contrast the samples across four firm types, i.e. based on the intersection of the level of financial constraints and the level of hedging needs (Constrained vs. Unconstrained and High hedging vs. Low hedging). Regressions 4-7 contrast four firm type groups; Constrained vs. Unconstrained as per S&P Paper Rating framework and High hedging vs. Low hedging, regressions 8-11 contrast four firm type groups; Constrained vs. Unconstrained as per S&P Bond Rating framework and High hedging vs. Low hedging and regressions 12-15 contrast four firm type groups; Constrained vs. Unconstrained as per KZ index and High hedging vs. Low hedging. The dependent variable is the natural log of audit fees. In order to conserve space, we only report the coefficients of *CASH 1* and *CASH 1*G-INDEX*. The table reports the OLS coefficient estimates and *t*-statistics based on robust standard errors that are clustered by firm. ***, **, and * denote statistical significance at the 1%, 5%, and 10% respectively. See Table 2 for variable definitions.