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Conservatism and corporate cash holdings: a risk prospective

Abstract

The purpose of this study is to investigate the relationship between accounting conservatism and a firm's cash holdings. The authors also investigate whether the association is dependent on the firm being public or private. Using a unique data of GCC countries from 2003 to 2012, the authors find that there is a positive association between accounting conservatism and amount of cash holdings for GCC firms. Also, the researchers find that the association is higher for public firms as compared with private firms.

Introduction

The level of cash holdings is a major element that contributes to a firm's survival. It has played a great role in the recent financial crisis. Firms with high levels of cash managed to fend off the recession and therefore required a lesser need to borrow. On the other hand, firms with lower cash holdings were required re-finance, either through debt or equity, but at a higher cost of capital. Prior research has examined possible factors that are associated with cash holdings. However, best to our knowledge, there is no research that examined the effect of accounting conventions and principles on the amount of cash held by firms. Specifically, there is no research that examined the effect of accounting conservatism on the amount of cash holdings. Therefore, the purpose of this study is to examine the association between the level of cash holdings and accounting conservatism.

Accounting conservatism is the understatement of net assets and earnings. According to Ball and Shivakumar (2005), conservatism serves two roles: one is imposing a downward bias in accounting (unconditional conservatism)[1] and the second being the timely recognition of losses as compared to gains (conditional conservatism). Both roles serve as a disincentive and a monitoring mechanism to deter managers from inflating earnings and consequently net assets. This quality of conservatism is essential for contracting purposes between shareholders and managers.

Among the suggested explanations for accounting conservatism is contracting due to the presence of the agency problem. Shareholders and board of directors need a mechanism to ensure that managers are acting on the shareholders' interest and that is creating value. One of the possible methods to align the interests of managers and shareholder's is to assess the performance of managers on criteria that are of interest to shareholders such as net income or earnings per share. As such, shareholders and board of directors need to rely on verifiable accounting numbers to make such assessment (Ahmed and Duellman, 2011). Accounting conservatism improves the reliability of accounting numbers by reducing bias towards overstatement. This reduction in bias towards overstatement can serve as a monitoring mechanism for the firm. For example, managers might be motivated to invest in net present value projects that seem profitable in the current year but eventually might incur a loss in the future. Due to the short tenure of mangers, he/she will not be blamed for such actions and thus continue to invest in net present value projects that are not optimal. However, under higher levels of conservatism managers are forced to report the results of any negative net present value projects faster.

With managers knowing that the board of directors is relying on conservative accounting numbers to assess their performance, they are unlikely to undertake negative net present value projects and focus on positive ones. As a result, with a limited pool of positive net present value projects, cash level is likely to be higher as compared with a firm with less conservative numbers where cash is spent on pools of both negative and positive net present value projects. This consequently results in managers re-thinking their investment decisions and eventually be more cautious in spending cash.

Another possible way to look at this is that conservatism is resulting in a better monitoring role for the board of directors and hence management will focus on positive net present value projects. This ultimately can be related to a higher balance of cash as a result of engaging in successful net present value projects.

However, the expected association between cash holdings and conservatism can follow either of two possibilities. According to the transaction model of cash holdings in Opler et al. (1999), cash holdings are decreasing with the increase in the cost of debt. Prior research finds that higher levels of conservatism are associated with lower cost of debt

[1] The paper measures conservatism as unconditional conservatism.

(Ahmed et al., 2002; Gracia et al., 2011). Under this scenario, conservatism is expected to be positively associated with higher levels of cash holdings. On the other hand, conservatism can also be expected to be negatively associated with cash holdings. Opler et al. (1999) information asymmetry model suggests that higher information asymmetry is associated with higher cash holdings. La Fond and Watts (2008) find that higher conservatism is associated with lower information asymmetry. In this case, higher conservatism will lead to lower information asymmetry and thus a lesser need to hold excess cash.

The paper will also investigate the association between the level of cash holdings and conservatism for public and private firms. The association might differ due to the expected demand for conservatism in public and private firms. The demand for accounting conservatism is higher for public firms since public firms are being monitored by shareholders and other independent parties. However, in private firms, there is a lesser need for conservatism since the agency problem is lower and monitoring system is weaker. Therefore, the association between the level of cash holdings and accounting conservatism is expected to be higher for public firms as compared with private firms.

One of the motivations for studying cash holdings is the risk associated with it. One can think of cash holdings as a risk management strategy. Firms that are prone to higher risk such as expensive financing, and fluctuations in their earnings are holding more cash. Kim et al. (1998) find that firms with higher costs of outside financing, unstable earnings, and lesser returns on assets, will hold a larger amount of liquid assets.

Firms who are financially limited and do not have a line of credit tend to hold more cash as precautionary plan. Sufi (2009) shows that constrained firms that do not have access to a line of credit are most probably to save cash out of cash flows.

Also, cash holdings are an effective risk management strategy to minimize the possible negative effect in the case of financial distress. For example, manager incline to hold cash in reaction to sudden changes in the firm's cash flows and investment opportunity set (Opler et al., 1999; Bates et al., 2009).

We collect data from the Gulf Cooperation Council (GCC) countries for public and private firms from 2002 to 2012. The selection of GCC countries is motivated by the unique nature of the area. This unique nature raises the question of whether international results on cash holdings as well as accounting conservatism apply to this part of the world. The following reasons address the uniqueness of the dataset.

First, the lending interest rate in GCC market for the past decade is higher than the U.S. and the European market. The average annual interest rate for the GCC countries from 1999 to 2011 is (9%) whereas in the U.S. for the same period is (6.1%)[1]. This would make many projects not economically feasible for the firms to carry such investments. Hence, many firms would hold large amount of cash to finance their projects.

Second, the GCC area is characterized by small and developing equity markets and there is more reliance on debt financing. Ball et al. (2008) find that the demand for conservatism is higher in debt markets as compared to equity markets. This is expected since debt holders are interested in the lower bound for a firm's net assets as it is used as a trigger for possible defaults. This provides more power for the tests of accounting conservatism.

Third, while firms are required to use International Accounting Reporting Standards (IFRS), the need for accounting conservatism may not necessarily follow the expected associations. For example, conservatism is expected to be higher in public firms since the monitoring level is higher. However, firms in the GCC area are characterized by concentrated ownership. As such, the agency problems can be addressed by keeping a close contact with management thus reducing the need for accounting conservatism. This consequently will bias against finding results for our study.

To test the association between the level of cash holding and accounting conservatism, we run a pooled regression of the level of cash holdings on accounting conservatism measure. The results show that there is a positive association between the level of cash holdings and accounting conservatism. The association is robust even after controlling for other variables that affect the level of cash holdings. This is consistent with conservatism serving as a monitoring mechanism to reduce management's incentives to invest in negative net present value projects and thus preserve cash.

In order to test for the differential association for public and private firms, we include a dummy variable for public firms and an interaction variable with accounting conservatism. The results show that the association between the level of cash holdings and conservatism depends on the firm being public or private. Specifically, it appears that the association is higher for public firm than private firms. This is consistent with a higher demand for accounting conservatism in public firms.

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[1] Lending rate is the bank rate that usually meets the short- and medium-term financing needs of the private sector. This rate is normally differentiated according to creditworthiness of borrowers and objectives of financing. The terms and conditions attached to these rates differ by country, however, limiting their comparability.

We contribute to the literature in three folds. First, we contribute to the literature on the determinants of cash holdings by documenting the role of accounting conservatism. We are not aware of any research that highlighted the role of accounting principles and conventions on the level of cash holdings. Second, we contribute to the literature of public and private firms and their different characteristics and reporting incentives. Specifically, we provide evidence that suggests the level of cash holdings is more influenced by conservatism in public firms as compared with private firms. Third, we document evidence that international results on the level of cash holdings are also applicable to the GCC area even though this part of the world possesses different characteristics and institutional factors.

The rest of the paper proceeds as follows. Section one discusses the literature review and develops the testable hypotheses. Data and methodology is stated in section two. Section three provides the results for the hypotheses. Final section concludes the paper.

1. Literature review and hypotheses

This section discusses the definition and roles of accounting conservatism as well as the explanations for its existence in accounting.

1.1. Accounting conservatism. *1.1.1. Definition and role of accounting conservatism.* Accounting conservatism has been traditionally defined as the anticipation of no profits and the anticipation of all losses (Bliss, 1924). The correct interpretation of this definition is that accounting treats gains and losses differently. Specifically, accounting requires a higher degree of verifiability for gains as compared to losses. This is in line with the view that it is better to understate income and net assets rather than overstate them.

Conservatism has two main roles (Basu, 1997; Watts, 2003a; and Ball and Shivakumar, 2005). The first role is that conservatism introduces a downward bias in accounting that result in the understatement of net assets and earnings. This downward bias prevents managers from the inclination to overstate net assets and/or earnings. This type of conservatism is usually referred to as unconditional conservatism where an accounting system is generally conservative independent of the news or events.

The second role served by conservatism is the timely recognition of losses as compared to gains. With this role managers are motivated to disclose negative news that may include any negative net present value projects. Without the notion of conservatism, mangers might be tempted to avoid disclosing bad news to interested parties. This type of conservatism is referred to as conditional conservatism where a firm is conservative depending on the news in question. As stated earlier, conservatism requires higher verifiability for gains as compared to losses.

1.1.2. Explanations for accountings conservatism. There are different explanations that underlay the existence of conservatism in accounting. Watts (2003a) highlights four main plausible explanations: contracting, litigation, taxes and regulations. The litigation explanation suggests that due to the higher litigation costs for overstatements (as compared to understatement), it is in the best interest for firms to understate their earnings rather than overstate. The tax explanation relies on the link between calculations of tax based on accounting income. If accounting income is conservative, taxes are expected to be lower when compared to taxes calculated on non-conservative accounting numbers. The regulation explanation is based on the idea that stricter regulations can cause accounting numbers to be more conservative.

The most discussed and developed explanation for accounting conservative is the contracting explanation. Contracting based on accounting numbers is a very old practice (Watts and Zimmerman, 1983). Watts (2003a) provides an overview of how conservatism results in efficient contracting between different parties of the firm. The overview centers on three areas to explain the role of conservatism in contracting; debt contracts, compensation contracts and firm governance.

Debt holders are mainly interested in the lower end of an earnings stream and net assets. If a borrower achieves higher than expected results, a lender will only get his allotted interest payment and the principle at the end of the loan period. Therefore, debt holders tend to focus on the lower end of earnings and net assets and include these limits in the contract covenants. These lower limits are usually highlighted by higher levels of conservatism. With higher levels of conservatism, managers are unlikely to overstate earnings and net assets since any gains that cannot be verified are not recorded while losses are recorded with a lower degree of verifiability. This practice motivates managers to focus on projects that are more likely to yield positive net present in order to maintain that lower bond on earnings and net assets. If a manger invests in negative present value projects and a loss occurs, conservatism requires that losses are to be recorded immediately into earnings. This creates an on time warning signals for debt holders to take proper action and protect their debt investment. Thus debt holders are expected to demand conservative accounting numbers because it is in their best interest. Researchers have found evidence consistent with debt markets demanding more conservative accounting numbers (Ball, Robin and Sadka, 2008).

A similar analogy is applicable to compensation contracts. Managers are motivated to overstate earnings in order to achieve income targets that trigger a distribution of compensation. As such, managers are likely to bias earnings upward with unverifiable future cash flows. Conservatism prevents overstatement of earnings since unverifiable future cash flows cannot be recognized into earnings. However, the same requirement is less stringent when it comes to losses. Managers interested in compensation are motivated to avoid reporting losses as it may result in the denial of compensation and perhaps termination of contracts. With higher degrees of conservatism, mangers are expected to report losses irrelevant of the effects on their compensation. This ultimately improves shareholders' value as mangers focus on verifiable positive net present value projects. This analogy indicates that shareholders are more likely to demand higher levels of conservatism when the agency costs between shareholders and mangers are high. Prior research finds evidence along the same lines (La Fond and Watts, 2008).

Firms' governance is expected to improve with conservatism. This is expected since conservatism requires timely recognition of losses. This timely recognition serves as a signal for shareholders and board of directors to identify whether current management invested in negative net present value projects and launch a proper investigation of the circumstances. This mechanism serves as a monitoring mechanism for shareholders to address any errors or wrong investment decisions made by management.

Two main pivotal points that emerge from the current literature on conservatism. One is that contracting is the most logical and developed explanation for accounting conservatism. Two is that conservatism results in efficient contracting between various parties of the firm whether those parties are shareholders or debt holder.

1.2. Cash holdings. Outside the perfect market condition of Miller and Modigliani (1958), firms operate under imperfect capital markets with lacking financial flexibility. Graham and Harvey (2001) document that most CFOs consider financial flexibility to be the most significant factor that decide on the level of debt, comparing with other common factors of capital structures such as interest tax shield, credit risk or cash flow volatility. Unlike the public firms, private firms face more frictions known their limitation in raising new equity and higher borrowing costs than do public firms (Saunders and Steffen, 2011).

Investment decisions are directly linked with the cash holdings of which affected by the financial flexibility. The amount of cash can be utilized by the firms in physical and financial investments or

allocate it to existing shareholders. In the event of adverse shock to cash flows or to investment openings, cash holdings become vitally important. A firm that expects financial limitations in the future will be conservative and hold more cash now to minimize the possible negative effect in the future (Kim, Mauer and Sherman, 1998; Almeida, Campello and Weisbach, 2004; Faulkender and Wang, 2006). Kim et al. (1998) illustrate that firms with higher costs of outside financing, unstable earnings, and lesser returns on assets, will hold a larger amount of liquid assets. Moreover, manager inclines to hold cash in reaction to sudden changes in the firm's cash flows and investment opportunity set (Opler et al., 1999; Bates et al., 2009). In short, the two main reasons for cash holdings are financial restrictions and agency considerations. Different level of financial and operational flexibility can help to be an alternative by connected clarification for different amounts of cash holdings by public and private firms.

Financial distresses are an unavoidable part of capital market. When there is an unanticipated shock in the firm's cash flow or investment chances, the firm is constrained in its capacity to act to these shocks in a sensible and effective way, reliant on the availability of precautionary funds or the extent of access to outside funds. Known market frictions, firms from time to time forego on positive net present value projects. Hence, in the presence of market frictions, a firm's financing decisions are not independent from its investment decisions. As Kaplan and Zingales (1997) discuss, not only the level of internal capitals but also the level of financial frictions governs the level of investment in a firm. Moreover, they find that firms with smaller financial constraint show superior investment sensitivities to cash flow than firms that seem more financially constrained. Almeida, Campello and Weisbach (2011) investigate the association between financing constraints and investment, allowing for events in which a firm anticipates expensive financing. If these constraints are binding, then firms try to alleviate the effects of possible future financing constraints by selecting projects that have lesser risk and faster profits in addition to those exploiting more liquid assets. Because the availability of internal funds assists to mitigate future financing constraints, there is a degree of mutual dependence between investment and financing decisions as well as cash management.

Almeida et al. (2004) show that the cash flow sensitivity of cash is higher for financially restricted firms than for unrestricted firms. Sufi (2009) shows that constrained firms that do not have access to a line of credit are most probably to save cash out of cash flows. Likewise, Acharya, Almeida and

Campello (2007) find that conditioning on future cash flows and investment opportunities are not vastly interrelated and the firm is constrained, then the firm inclines to save cash out of operating cash flows. Linked with the market frictions argument of holding cash is the worry about future financing capability. Faulkender and Wang (2006) find that the higher the financing constraint a firm faces, the higher the value of cash for the firm will be. Also, Han and Qiu (2007) find that firms save more cash as the volatility of their cash flows increases.

Opler et al. (1999) findings are in line with a precautionary motive for cash holdings. There is a positive association between observed cash holdings and cash flow variability, the R&D expenditures and market-to-book ratios. Firms with inadequate access to external financing and strong growth opportunities are lean towards holding more cash. Additional finding by Duchin, Ozbas, and Sensoy (2010) shows that public firms accumulate excess cash reserves due to the increasing uncertainty of cash flows and this excess cash enables firms to finance investments during the crisis that they would otherwise unable to finance.

Ang and Smedema (2011) find that unconstrained firms are having a higher propensity to build cash balances if they expect a future crisis. Bates et al. (2009) attribute the recent increase in cash holdings to changing firm characteristics rather than agency problems. Subramaniam, Tang, Yue and Zhou (2011) investigate whether firm structure affects cash holdings and find that diversified firms hold significantly less cash than focused firms. Denis and Sibilkov (2011) show that when firms have high hedging needs (i.e. when the correlation between cash flows and investment opportunities is low), cash holdings allow constrained firms to invest more.

Besides the precautionary motive, an alternative key motive for cash holdings is agency concerns. Jensen (1986) finds that entrenched managers incline to build cash reserves instead of distribute them to shareholders when the firm has poor investment opportunities. Holding large cash balance, consequently, can be value-decreasing because additional cash reserves tend to worsen agency problems. Among the studies in line with this agency perspective of cash policy are Harford (1999), Dittmar and Mahr-Smith (2007) and Harford, Mansi and Maxwell (2008). The paper by Harford et al. (2008), specifically, finds that firms with weak governance spend cash faster than those with superior governance. Likewise, Dittmar et al. (2003) illustrate that firms in countries with more agency problems hold more cash. One further reason to cash holdings is taxes. Foley, Hartzell, Titman and Twite (2007) find that U.S. international firms hold a larger amount of cash than national firms since international cash funds provide a method of reducing the overall corporate tax loads.

1.3. Conservatism and cash holdings. Accounting conservatism can be linked to the amount of cash holdings based on the contracting explanation suggested earlier. The linkage is based on the effect that conservatism has on contracting with various parties of the firm. For example, if conservatism reduces the risk of default for lenders, hence reducing the cost of borrowing, this eventually will manifest itself as a lesser need for the borrower to hold more cash since the risk is reduced. However, to properly form the linkage between accounting conservatism and cash holdings, a reference has to be made to the current theoretical framework underlying the optimal amount of cash holdings.

One of the theoretical models suggested by Opler et al. (1999) to determine the optimum amount of cash holdings is the transaction model. Under the transaction model, firms make decisions on the amount of cash needed based on the transaction costs associated with falling short of cash and/or having excess cash. Based on the expected cost of an event, firms will take measures that either increase or reduce the level of cash holdings. For example, for firms in volatile industries where predicting future events is less reliable, it is expected that firms would tend to keep a higher level of cash to protect against uncertainties.

Among the expected results of the transaction model the level of cash holdings is decreasing with the increase in cost of debt. When the cost of borrowing increases, firms are expected to hold less cash and vice-versa. Recall that accounting conservatism is a desirable characteristic of accounting numbers as viewed by debt holders. Prior research finds that firms with a higher level of accounting conservatism experience a lower cost of debt. Ahmed et al. (2002) finds that conservative accounting reduces the cost of debt. They argue that conservatism reduces the risk that a firm's management will pay excessive dividends to shareholders at the expense of debt holders. As a result, debt holders will be willing to accept a lower return on their funds as the overall risk is reduced. This is also supported by Gracia et al. (2011) where they find that conservatism is negatively associated with the cost of equity capital. This suggests that higher levels of conservatism should lead to more cash holdings based on the transaction model and research findings on conservatism.

However, a different association is reached using the information asymmetry and agency costs theoretical model. Opler et al. (1999) suggest that

higher information asymmetry and, eventually, higher agency costs will lead firms to hold excess cash. This is expected since firms with higher information asymmetry and agency costs will find equity and/or debt financing more expensive due to the low amount/quality of information. This is also supported by Dittmar et al. (2003) where they find that firms in countries with poor shareholders protection rights hold up to twice as much cash as firms in countries with good shareholders protection rights.

La Fond and Watts (2008) find that firms with higher conservative earnings numbers exhibit reduced levels of information asymmetry between equity investors and the firm's management. They argue that conservatism reduces a manager's ability to manipulate earnings and align their interest more with the shareholders' interest to maximize firm value. They further find that changes in information asymmetry are followed by changes in the level of conservatism. This suggests that in cases where information asymmetry is high, the demand for conservatism would be higher. Based on these findings, firms with higher levels of conservatism are expected to hold a lower level of cash as compared to firms with lower levels of conservatism. In this case, conservatism is expected to reduce information asymmetry between shareholders and management and therefore management would have few incentives to hold excess cash.

A similar conclusion can be reached when looking at the association from the view point of the precautionary motive. For example, when expecting that access to cash will be more costly, firms are more likely to increase their cash holdings currently in anticipation of this event. Assuming that a firm finds access to cash more costly due to their increased leverage, applying higher levels of conservatism, thus reducing their cost of debt, would result in a lesser need to hold cash. Therefore, conservatism is expected to have a negative association with cash holdings.

Given the two competing expected associations between conservatism and cash holdings, the research states the following null hypothesis:

"H_0: The level of accounting conservatism is not associated with the level of cash holdings".

1.4. Conservatism, cash holdings and private and public firms. Our next hypothesis is inspired by Gao et al (2013) and Akguc and Choi (2014). In the GCC area, public and private firms use the same set of accounting standards (IFRS: *International Financial Reporting Standards*), are required to be audited and are subject to similar tax rules. However, their reporting incentives are different. While public firms invest into extensive financial reporting and

disclosures in order to reduce information asymmetry and agency costs, private firms have a lesser need to do so. In private firms, any information asymmetry is resolved through direct contact with management or direct involvement in management. This is especially applicable in the GCC area where heavy concentrated ownership is prevalent. As such, a lower demand for conservatism is exhibited for private firms as compared to public firms.

This is confirmed by Ball and Shivakumar (2005) where they investigate the demand for timely loss recognition[1] based on a UK sample of public and private firms. They find that the demand for timely loss recognition is lower in private firms as compared to public firms. They argue that this is based on the lower demand from shareholders of private firms since they can undo any information asymmetry through direct contact with management.

This suggests that public firms have a higher degree of accounting conservatism as compared to private firms. Therefore, accounting conservatism is more likely to be associated with cash holdings for public firms rather than for private firms. This leads to the following null hypotheses:

"H_0: There is no difference in the association between accounting conservatism and the level of cash holdings between public and private firms".

2. Data description and univariate analysis

2.1. Sample construction. The main data source for this study is Standard and Poors' Capital IQ (CIQ) database. CIQ provides firm-specific data for a large sample of international and domestic public as well as private firms. It still remains that private firms are more constrained financially than public firms given their limited access to capital markets.

To construct the usable dataset, we start with all firms in the 6 GCC countries in the database with non-missing asset entries from 2002 to 2011. As is customary in the corporate literature, financial (SIC Codes between 6000 and 6999) and regulated utilities companies (SIC Codes between 4900 and 4949) were excluded. However we require firms to have at least two years of non-missing data to be able to calculate sales growth as well as other changes in some key variables. We also exclude firm-year observations with inconsistent financial information such as negative assets, revenue, debt, etc., as well as those with missing cash and cash equivalents variable.

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[1] Timely loss recognition is one of the forms of measuring conditional conservatism.

As highlighted in Akguc and Choi (2014), it is important to note that Capital IQ database classifies a firm as public or private based on the firm's latest status. In order to correctly classify the contemporaneous status of firms, we search for all key event dates and identify initial public offerings and delistings from the stock market. We then reclassify a firm as public or private based on these key dates[1]. We also exclude firm year-observations to make sure we correctly account for differences in cash holdings between public and private firms.

The initial raw sample of firms in GCC countries from CIQ consisted of 7960 firm-year observations and 796 distinct firms. After applying the above criteria, the final sample has 3330 firm-year observations and 442 unique firms, of which are 635 firm-year observations representing 139 distinct private firms and 2695 firm-year observations representing 353 distinct public firms.

2.2. Data description and univariate analysis. Table 1 provides the number of firm-year observations for public versus private firms by country, or by Fama and French 48 industry breakdown (panel B). It is interesting to note the UAE has the highest number of private firms observations while Saudi Arabia has the highest number of public firms observations. Panel B presents the classification of sample firms by industry. It appears that highest number of public firms observations are from the manufacturing industry. This is typical of the manufacturing industry where heavy investments and strict working capital requirements make it necessary for manufacturing firms to seek financing either through debt or equity. Panel B also shows that the sample is representative of typical industries. Financial services companies and utilities are excluded from the sample due to the heavy regulation in these industries.

Table 1A. Number of observations by country and firm type

	Private firm	%	Public firm	%	Total
Developed Europe					
Bahrain	32	20%	130	80%	162
Kuwait	56	8%	635	92%	691
Oman	132	16%	700	84%	832
Qatar	30	16%	153	84%	183
Saudi Arabia	117	14%	731	86%	848
United Arab Emirates	268	44%	346	56%	614
Total	635	19%	2,695	81%	3,330

Table 1B. Distribution of sample firms by industry

Fama and French 12 Industries	Public firms	% of total	Private firms	% of total	Total	% of total
1 Consumer nondurables	395	0.092%	68	0.016%	463	13.904%
2 Consumer durables	7	0.002%	10	0.002%	17	0.511%
3 Manufacturing	608	0.142%	52	0.012%	660	19.820%
4 Energy	83	0.019%	61	0.014%	144	4.324%
5 Chemicals and allied products	167	0.039%	15	0.004%	182	5.465%
6 Business equipment	18	0.004%	18	0.004%	36	1.081%
7 Telecom	106	0.025%	11	0.003%	117	3.514%
9 Wholesale, retail, and some services (laundries, repair shops)	292	0.068%	59	0.014%	351	10.541%
10 Healthcare, medical equipment, and drugs	85	0.020%	4	0.001%	89	2.673%
12 Other − mines, constr, BldMt, trans, hotels, bus serv, entertainment	934	0.218%	337	0.079%	1,271	38.168%
Total	2,695	80.9%	635	19.1%	3,330	100%

Table 2, panel A presents descriptive summary statistics for firm-specific variables (detailed definitions are provided in Appendix A). All monetary accounts are expressed in 2011 U.S. dollars using the Consumer Prices Indices from the U.S. Bureau of Labor Statistics. All continuous variables are winsorized at the bottom and top 1% level to reduce the effect of outliers.

Financial statement variables are scaled by total assets to control for size (except for dividends dummy, number of business & geographical segments and firm age).

One of the variables of interest in this study is the measure of conservatism. The measure represents the difference between net income before interest, taxes, depreciation and amortization after deducting operating cash flows. It is important to highlight that the measure is scaled by total assets and multiplied by -1 to make interpretation more convenient. A negative value for the conservatism measure indicates that earnings are higher than cash flows

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[1] For example, if a firm did an IPO in 2007, and it has financial information from 2002 to 2011, Capital IQ classifies this firm as public in all years. As a result of detailed event date check, we correct for this designation error and reclassify the firm as private from 2002 to 2006 and as public from 2008 to 2011.

which suggest that accruals (i.e. conservatism) are positive. The descriptive statistics from panel A in Table 2 shows that the conservatism measure for public firms is negative on average which suggests that on average accruals are positive for the sample firms from the GCC countries. This result is in contradiction with prior research where accruals is found to be on average negative. Prior research findings highlight a tendency towards more conservative earnings on average. However, in the GCC area, where the study expects a lower demand for conservatism, accruals on average are positive. This effect is even magnified for the private firms' sample where it is -1.09 (-0.49).

The second variable of interest in the study is the cash holdings. Table 2A (see Appendix) shows that cash holdings are generally higher for private firms [12.13% (4.43%)] as compared with public firms [9.67% (5.34%)]. This result is reflective of the financing sources available to private and public firms. For private firms, the only source of external capital is debt and therefore it makes sense to hold a higher value of cash in anticipation of a shortage. However, public firms can access two sources of financing where is either debt or equity which suggests a lower need to hold excess cash as compared with private firms.

The other variables in the descriptive statistics are in line with prior research and expectations. For example, private firms possess a larger assets base as compared with public firms ($2443 million for private firms as compared with $927 million for public firms). This is expected since around 17% percent of the private firms sample is concentrated

in the manufacturing and energy industry where heavy investments are required. On the other hand, the debt ratio shows that private firms are on average more indebted as compared to public firms. This can be due to the sources of finance available for each firm type. Private firms also have larger sales revenues ($1,214.81 million) than public firms ($423.96 million). Average sales growth and operating cash flows as a percentage of assets are also larger for public firms than private firms. However, average age of public and private firms is the same (23 years old). However, the average net working capital and acquisitions expense are larger for private firms than they are for public firms. The debt ratio for private firms (21.1%) is higher than public firms (18.77%).

Table 2B presents pairwise correlations among the variables. Focusing on the main variables of interest, we observe that conservatism is positively associated with cash holdings (0.0779) which is significant at the 5% level. This lends support to the premise in this study where hypotheses link conservatism and cash holdings. Other associations are also consistent with prior research. For instance, the association between firm size, as measured by assets, is positively associated with conservatism (0.1086). The demand for conservatism is expected to be higher for larger firms as the agency problem might become more significant. It is also interesting to see in Table 2 panel C that public firms are highly correlated with dividend dummy (0.22). Both of these are confirmed in panel A in more detail. 51.21% of public firms pay dividend while only 27.65% of private firms pay dividends.

Table 2B. Pairwise correlation matrix

	1	2	3	4	5	6	7	8
1 Cash	1							
2 Conservatism	0.0779*	1						
3 Ln(total assets)	-0.0604*	0.1086*	1					
4 Public	-0.0685*	0.0078	0.0724*	1				
5 CF volatility	0.1381*	-0.0381	-0.1623*	-0.1495*	1			
6 Sales growth	0.0434*	0.0315	0.0618*	-0.0705*	0.1039*	1		
7 Leverage	-0.2729*	-0.0937*	0.0579*	-0.0318	-0.0202	0.0579*	1	
8 Ln(Firm age)	-0.0958*	0.056	0.1320*	0.0672*	-0.0452*	-0.1787*	-0.1970*	1

Figure 1 shows the evolution of cash holdings over time graphically. Private firms hold on average more cash than public firms every year in the sample for the GCC samples. The difference in cash holdings

between public and private firms narrows to reach 11% during the financial crisis in 2008. The extent of cash holdings for private and public firms intersects in 2011 then they started to diverge thereafter.

Cash to asset ratio: by firm type and year
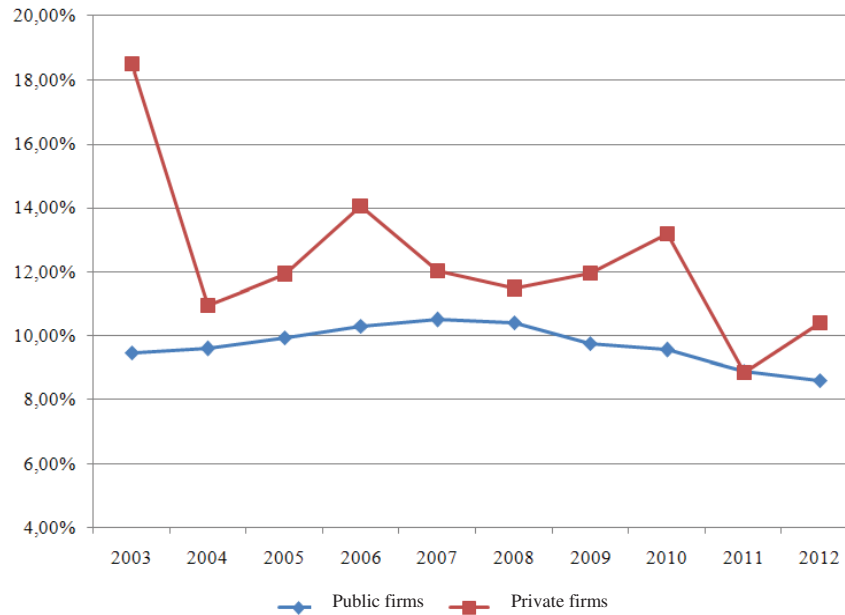
Note: This figure presents the evolution of cash ratio during the sample period from 2003 to 2012.

Fig. 1. Cash holdings of GCC public and private firms by year, 2003-2012

3. Empirical estimation of the baseline models

3.1. The baseline model. In order to test the first hypothesis, we first estimate a baseline model to test the association between cash holdings and accounting conservatism. We estimate the basic models of Opler et al. (1999) and Bates et al. (2009), however, since the market-to-book ratio in their model is not available for private firms, we adapt it to include sales growth instead following Asker et al. (2012) and Michaely and Roberts (2012).

The baseline model is as follows:

$$Cash_{it} = \beta_0 + \beta_1 Conservatism_i + \beta_2 \text{Ln}(Total\ assets)_{it} + \beta_3 (CF\ volatility)_{it} + \beta_4 (Sales\ growth)_{it} +$$
$$+\beta_5 (Leverage)_{it} + \beta_6 (NWC)_{it} + \beta_7 \text{Ln}(Firm\ age)_{it} + year\ dummies + country\ dummies + \varepsilon_{it}. \tag{1}$$

We estimate model (1) using the pooled OLS approach where standard errors are adjusted for clustering by country and year, allowing for serial correlation within clusters. The dependent variable is cash and cash equivalents scaled by total assets. For independent variables, *Conservatism* is calculated as net income before extraordinary items plus depreciation expense less operating cash flows deflated by assets multiply by -1; Ln(*Total Asset*) is firm size measured by the logarithm of total assets; *CF volatility* is calculated as the standard deviation of cash flow for each firm for all available years; *Sales growth* is the rate of sales revenue from t-1 to t; *Leverage* is total debt scaled by total assets; *NWC* is net working capital calculated as (Current Assets − Current Liabilities − Cash and Cash equivalents scaled by total assets); *Dividend* is a dummy variable that takes the value of one for dividend-paying firms and zero otherwise; *CAPEX* is capital expenditures scaled by total assets; *R&D* is a dummy variable that takes the value one if a firm has positive R&D and zero otherwise; Ln(*Firm age*) is the logarithm of firm age. The main interest of the model is the coefficient on the conservatism measure (β_1).

The results of for the regression using equation (1) are presented in Table 3. As seen from the regression results, the coefficient on Conservatism is positive and significant [0.121(0.029)]. This suggests that the higher the conservatism, the higher are the cash holding. This is consistent with conservatism representing a tighter monitoring mechanism and thus preventing management from investing in negative net present value projects thus preserving cash. Other variables in the regression are also consistent with prior research and general expectations. CFO volatility is positively associated with cash holdings [0616]. This is consistent with firms being precautious when their cash needs are volatile. The coefficient on leverage is negative and significant [-0.205] suggesting that firms with higher debt hold less cash. This is expected since firms that borrow heavily are borrowing due to their lower cash holdings. Finally, the coefficient on Firm Age is negative and significant suggesting that as firms grow older they probably learn to manage their cash flows better and consequently foresee a lesser need to hold larger amounts of cash.

Table 3. The baseline model of cash holdings

This table presents regression of cash holdings on conservatism and firm characteristics for 6 GCC countries between 2003 and 2012. The data for publicly traded and private firms come from S&P's Capital IQ database. Regressions are grouped by all GCC countries. Dependent variable is cash and marketable securities to asset ratio. Conservative is calculated as net income before extraordinary items plus depreciation expense less operating cash flows deflated by assets multiply by -1. Public is a dummy variable that takes the value of 1 if a firm is publicly traded and zero if it is a private firm. Conservatism x Public is the interaction variable between conservatism measure and public dummy variable. Ln(*Total Asset*) is the natural logarithm of bookvalue of assets. CF Volatility is calculated as the standard deviation of Cash Flow for each firm. Sales Growth is growth in revenue from time *t* to *t*+1. Leverage is short term debt plus long term debt scaled by total assets. Ln(*Firm age*) is calculated as the logarithm of years since founding. The *p*-value reported in parentheses are based on standard errors robust to clustering by country and year. Country and year dummies are included in all regressions. ***, **, * represent significance at 1%, 5% and 10% levels, respectively. All continuous variables are winsorized at 1% at each tail to reduce the impact of outliers. Dollar values are converted into 2011 constant dollars using the CPI.

	(1)	(2)	(3)	(4)
Conservatism	0.126** (0.024)	-0.0721 (0.522)	0.176*** (0.000)	0.0269 (0.866)
Public	-0.0238* (0.086)	-0.0251** (0.021)		
Conservatism X public		0.240* (0.053)		
Ln(Total asset)	-0.000736 (0.734)	0.000473 (0.829)	-0.000857 (0.696)	0.00354 (0.655)
CF volatility	0.584*** (0.000)	0.595*** (0.000)	0.638*** (0.000)	0.529 (0.143)
Sales growth	0.00409** (0.294)	0.00472 (0.172)	0.00469 (0.258)	0.00875 (0.245)
Leverage	-0.181*** (0.000)	-0.183*** (0.000)	-0.194*** (0.000)	-0.194*** (0.010)
Ln(Firm age)	-0.0255*** (0.000)	-0.0269*** (0.000)	-0.0387*** (0.000)	0.0190 (0.327)
Constant	0.206*** (0.000)	0.212*** (0.000)	0.229*** (0.000)	0.0626 (0.416)
N	1021	1021	861	160
R-sq	0.140	0.144	0.168	0.110

For the second hypothesis we use the following model:

$$Cash_{it} = \beta_0 + \beta_1 Conservatism_i + \beta_2 Public_i + \beta_3 Public_i \times Consrevatizm_i + \beta_4 \text{Ln}(Total\ assets)_{it} +$$
$$+\beta_5 (CF\ volatility)_{it} + \beta_6 (Sales\ growth)_{it} + \beta_7 (Levarage)_{it} + \beta_8 \text{Ln}(Firm\ age)_{it} + \qquad (2)$$
$$+ year\ dummies + country\ dummies + \varepsilon_{it}.$$

Model (2) uses the same variables as in model (1) with the addition of two variables; *public* is a dummy variable that takes the value one for public firms and zero for private firms; *conservatism × public* is an interaction variable between conservatism measure and the public dummy variable. The coefficient on the interaction variable (β_3) in model (2) measures whether the association between cash holdings and conservatism is affected by whether the firm is public or private.

The results for model (2) are presented in Table 4. The coefficient on the interaction variable is positive (0.240) and significant at the 1% level. The coefficient on conservatism, however, turns negative and insignificant (-0.0721). The results reject the second null hypothesis and suggest that the association between cash holdings and conservatism is mainly for public firms. This lends support to the expectation that the demand for conservatism is higher in public firms as compared to private firms.

One of the interesting findings from model (2) is the coefficient on the public dummy. The regression results show that the coefficient of public is negative (-0.0251) and significant at the 5% level. This indicates that public firms tend to hold less cash as compared with private firms. This can be due to the available sources of financing available to public firms and therefore a lesser need to keep high levels of cash. This was confirmed by the descriptive statistics (Table 2A) where it shows that the private firms hold significantly more cash than public firms.

In model (3) we run regression for subsample of public firms only. The coefficient of conservatism variable is positively significant. This result confirms the interactions variable result in model (2) which shows that the public firms are more conservative than private firms. We repeat the same regression for only private firms, model (4), and the results are still consistent with model (2).

3.2. Limitations. There are two limitations for this study. The study uses one measure for conservatism which is based on accruals. There are other measures of conservatism but this study cannot utilize them since they rely on market prices. For example, Basu (1997) measures conservatism using market prices by testing the association between good/bad news as reflected in market prices and a firm's earnings. However, we are unable to use this measure as market prices are not available for private firms. The other possibility is to use a modified version of the Basu (1997) model where the association is tested between changes in earnings from year to year. However this measure requires more data points which we are unable to get at this point.

There is also the possibility of missing variables in the analysis. For example access to credit lines may have an effect on the results in this study but unfortunately we do not have access to such data.

Conclusion

This paper investigates the association between a firm's level of accounting conservatism and cash holdings. The study also examines how the association would be affected by whether the firm is a public or a private firm. We use a unique dataset of firms from seven GCC counties from 2003 to 2012. The results suggest that a higher level of conservatism is positively associated with the level of cash holdings. This finding is robust after controlling for various model specifications. It appears that accounting conservatism serves as a mechanism to curb managements investments in negative present value projects thus preserving more cash.

This study is the first that links the role of accounting conventions and the level of cash holdings. One of the roles of accounting conventions is to improve the quality of accounting information. Accounting conservatism is one of these conventions that improve the quality of financial reporting by preventing management from overstating net assets and earnings. The results of this study suggest that accounting conventions, such as conservatism, can also have an impact on investment decisions.

Another important finding of this paper is the extent of the association in public and private firms. The results show that the association between accounting conservatism and cash holdings is mostly driven by public firms. We attribute this to the demand of accounting conservatism in public and private firms. The agency costs are higher in public firms and thus shareholders would demand more conservative accounting numbers.

In addition to the main findings, this study also shows that international results on conservatism and cash holdings are also replicable to the GCC countries. The same applies to public and private firms although this part of the world has its different institutional factors and small equity and debt markets.

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Appendix

Table 2A. Summary statistics − all GCC countries (2003-2012)

This table presents summary statistics for key variables for all 6 countries in the sample. Countries in the sample are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates. All dollar values are expressed in 2012 constant US Dollars million. All Ratios are scaled by Total Assets. All continuous variables are winsorized at 1% at each tail to reduce the impact of outliers. Cash is the amount of cash holdings. Conservative is calculated as net income before extraordinary items plus depreciation expense less operating cash flows deflated by assets multiply by -1. Public is a dummy variable that takes the value of 1 if a firm is publicly traded and zero if it is a private firm. Conservatism x Public is the interaction variable between conservatism measure and public dummy variable. Asset is the total assets. CF Volatility is cash flow volatility calculated as the standard deviation of Cash Flow for each firm. Sales Growth is growth is revenue from time t to t+1. Leverage is short term debt plus long term debt scaled by total assets. Ln(Firm age) is calculated as the logarithm of years since founding.

	Public firms						Private firms						Difference in means	Difference in medians
	N	mean	st.dev	25th %	median	75th %	N	mean	st.dev	25th %	median	75th %		
Conservatism	1158	-0.82%	17.89%	-3.47%	-0.15%	2.90%	286	-1.09%	10.85%	-4.71%	-0.49%	3.09%	0.28%	0.35%
Cash	2387	9.67%	11.18%	2.21%	5.34%	13.19%	620	12.13%	19.16%	1.47%	4.43%	13.56%	-2.46%	0.92%
CF volatility	2459	6.18%	3.80%	3.52%	5.38%	7.53%	514	8.27%	10.15%	4.04%	6.29%	9.52%	-2.09%	-0.90%
Asset	2638	927.33	2712.33	52.97	171.70	587.55	633	2443.81	7974.61	26.31	138.31	439.79	-1,516.48	33.39
Sales growth	2263	26.18%	82.16%	-4.66%	11.48%	30.73%	434	48.38%	184.48%	-6.44%	14.22%	35.51%	-22.19%	-2.74%
Leverage	2636	18.77%	21.99%	0.00%	10.86%	32.11%	551	21.81%	24.88%	0.00%	13.75%	36.26%	-3.04%	-2.88%
Firm age	2283	23.82	13.83	12	24	33	453	23.98	19.07	8	21	33	-0.17	3.00