"Cash level and corporate performance: evidence from the Gulf Cooperation Council countries"

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BUSINESS PERSPECTIVES

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CASH LEVEL AND CORPORATE PERFORMANCE: EVIDENCE FROM THE GULF COOPERATION COUNCIL COUNTRIES

Abstract

This study aims to examine the connection between cash level and corporate performance, as well as the cash level determinants for all nonfinancial firms in the Gulf Cooperation Council (GCC) countries. The empirical analysis employs numerous statistical techniques such as panel regression models and the Generalized Methods of Moments (GMM). The main result of the study confirms a positive relationship between the cash level and both the corporate performance and the firm value, which signifies the role of cash in supporting the corporate productive activities in times of rare cash. The results also show that large firms, especially those with less leverage, experience better corporate performance. Additionally, the results demonstrate that when using different levels of cash holdings as well as different levels of firm size, both the magnitude and the significant positive effect of the cash level on corporate performance and firm value are not altered. For the determinants of the cash level, the results confirm that the most important variables are product competition, free cash flow, corporate liquidity, capital expenditures, and financial constraints. The results do not confirm that the amount of dividend paid has a significant influence on the cash level. All results are robust to the various econometric specifications employed in this study.

INTRODUCTION

The optimal cash level that firms should hoard is debated by both academics and practitioners. Conventionally, hoarding a large amount of cash was considered an ineffective managerial policy due to the risks of loss and inefficient governance. Nevertheless, there is a secular increase in the accumulation of cash by firms (see, for example, Bates et al., 2009). This increasing trend towards cash level buildup has attracted the attention of both researchers and investors interested in identifying the causes and consequences of increasing corporate cash level over time.

This study investigates the firm-specific cash level determinants for nonfinancial firms in the Gulf Cooperation Council (GCC) countries. GCC is a political and economic coalition that includes Kuwait, the Kingdom of Saudi Arabia, Qatar, Bahrain, United Arab Emirates, and Oman, with a goal to harmonize major economic and diplomatic policies among member countries. The set of GCC firms is considered a distinct sample for two reasons. First, GCC firms carry out business in a tax-free economy, which may have a bearing on the pre-established evidence on the determinants of cash level. Second, GCC business concerns are wealthy as they constantly receive lavish support from their respective governments. The wealth of the oil-exporting GCC

countries tends to create a relatively constant source of financing which, in turn, tends to deter GCC corporate managers from behaving optimally in their business-related decision making, especially with regard to the optimal corporate cash level (Alshammari, 2018).

This study also investigates the association between corporate cash level and corporate performance. The well-structured cash level theoretical models relate only to the optimal level of cash, but none of these models examines the relation to corporate performance as they assume cash balances to be irrelevant to firm performance.

The paper is organized as follows. Section 1 contains a literature review of the cash level theme. Section 2 describes the methodology and the data set. Section 3 considers results. Section 4 contains a full discussion of the results and compares the results with those in the literature. The last section concludes the paper.

1. LITERATURE REVIEW

To undertake the objective of the study, the literature review deals with two related topics that are associated with the corporate cash level theme. The first relates to the effect of cash level on corporate performance, and the second relates to the firm-specific determinants of the corporate cash level.

The effect of corporate cash level on firm performance is examined by Faulkender and Wang (2006) who test the effect of the cash level on firm valuation for a sample of US firms throughout 1970–2001. They document that firms with higher liquidity are rewarded by investors with higher valuation levels, but the marginal value of cash diminishes with larger cash levels, higher leverage, better access to capital markets, and whether firms choose to distribute cash through dividends rather than stock repurchases. Also, Pinkowitz and Williamson (2007) investigate the dollar value of the cash level for a sample of US firms from 1955 through 1999. They find that firms with good growth opportunities, less financial distress, and more stable investment programs have higher cash values and that those firms are valued more highly by investors. In addition, Zhang et al. (2015) investigate the cash value of a sample of German and Chinese firms between 2000 and 2012 and document a higher value for firms with low cash levels. Huang et al. (2008) carry out an international study on the effect of cash holdings on value and find that cash resources are rewarded with a higher market valuation. Moreover,

Schweitzer and Reimund (2004) document that, for German firms, the cash value is determined by how much the cash deviates from the industry mean. Ameer (2012) finds a negative impact of cash on the firm value as indicated by Tobin's Q and Nguyen et al. (2016), who document an inverse U-shape relationship between cash and value, which supports the trade-off theory.

On the other hand, several studies investigate the determinants of the corporate cash level. In a recent paper, Cunha and Pollet (2020) examine the predictions of the precautionary motive for cash holding in US industries sensitive to variations of demographic demand from 1970 to 2004. Their results deviate from the classical Modigliani-Miller (1958) framework as they document that variations in cash level are unrelated to firm characteristics or macroeconomic factors. Cunha and Pollet (2020) conclude that both investment opportunities and financial constraints motivate firms to build up cash internally, but unconstrained firms save less as they depend on external financing. Guney et al. (2007) examine corporate cash holding behavior in several Asian and European countries. They provide evidence that corporate cash holdings are heavily influenced by the country's legal structure and the firm ownership structure. Loncan and Caldeira (2014) document a negative relationship between leverage and cash levels. They find that constrained firms tend to hold more cash and are therefore more valued by investors. Harris et al. (2017) build a theoretical model, which predicts that firms hoard cash when the cost of cash is minimal and when

investment opportunities are high. Couderc (2006), Ozkan et al. (2004), and Shah (2011), all show the main determinants of cash holdings to be firm size, cash flow level, growth rates, cash flow variability, dividend payments, liquidity and Tobin's Q. Orlova and Rao (2018) find that firms with excess cash and cash-deficient firms adjust faster to a cash target level.

Based on the above literature, two conflicting effects of cash holding on corporate performance are expected. On the one hand, at lower levels of cash transactions, the cash precautionary motives would predominate, so an increase in cash level would increase corporate performance. On the other hand, both the free cash flow and opportunity cost are crucial motives for higher cash levels, which would lead to a reduction in corporate performance.

Aims

It is clear from the cash level literature review that market competition as one plausible determinant of cash holding has received little attention. Product intensity can be indicated by the extent to which corporations engage with one another, doing their best to take customers away from competitors. This behavior impacts the market share and seems, in turn, to exogenously impact corporate cash levels. Hence, this study intends to add to the literature in two ways. The first is to examine the role of product competition in determining corporate cash level, and to study the association between the cash level and firm performance. The second is to shed light on the cash level of a neglected and distinct sample of firms that carry out business in the GCC countries.

2. METHODOLOGY

2.1. Data collection

The sample firms are all GCC publicly-listed non-financial firms (i.e. banks, investment and insurance firms are excluded). All financial data of companies are in $US and fetched from the Bloomberg database. The data set includes 286 nonfinancial firms and spans the period of 2012–2018, which amounts to 2002 firm-year observations. This period is thought to be sufficient for serving the goal of the study, especially as the period covered is clear of any extreme financial crises. Table 1 provides statistical attributes of the main variables of interest in this study (the mean, the median, and the -th percentiles) for all GCC nonfinancial firms. The mean of cash holding is almost 8.8%, which is slightly higher than 7.6% of Italian firms (Rocca et al., 2019), but considerably less than 10.9% of US firms (Cunha & Pollet, 2020), 12.3% in France (Guney et al., 2007),

12.5% of Brazilian firms (Loncan, 2014), 13.3% of Chinese firms (Rehman et al., 2016), 19.4% of Japanese firms, and exceedingly below the cash ratio of the US sample firms of 44% (Orlova & Rao, 2018). The lower ratio of cash holding for GCC firms can be explained either by the instant access these firms have to financing from GCC local governments, who constantly subsidize their private sectors (Alshammari, 2018), or from the GCC's highly capitalized banks. Alshammari (2017) reports that the mean value of the capital to asset ratio of all GCC banks is almost 18% for both Islamic and conventional banks, compared to 10% for some international banks. The performance of GCC firms (in terms of Tobin's Q) seems to be less

Table 1. Summary data statistics

Variable	Mean	SD	Percentiles			Obs.
			25th	Median	75th	
CASH	0.0885	0.1081	0.0207	0.05	0.113	1527
Liq	0.1414	0.2008	0.028	0.1198	0.253	1527
ROA	0.0408	0.1067	0.0073	0.0413	0.0847	1527
Size	19.6194	1.7359	8.0163	19.6291	8.9295	1527
TQ	1.4216	0.9841	0.8998	1.1351	1.6663	1527
Lev	0.2116	0.1826	0.0422	0.1821	0.3309	1527
Growth	0.0312	0.365	−0.0954	0.011	0.1124	1527
Tang	0.4035	0.2488	0.1903	0.3871	0.5998	1527

Note: The variables and their definitions are defined in the appendix. "Obs." are firm-year observations.

than that of other western countries. The mean value of the GCC firms' Tobin's Q is 1.42 (90% for the lowest quartile), which is substantially low compared to 3.46 for UK firms (Ameer, 2012), 1.105 for Pakistani firms (Azmat 2014), and 2.001 for Chinese firms (Rehman et al., 2016). Interestingly, the leverage ratio is only about 20% (33% at most) for GCC firms versus more than 50% in most other countries (Azmat, 2014; Rehman et al., 2016). Some local observers emphasize the cultural traits of the GCC corporate managers who tend to disfavor debt as a source of funding. Remarkably, there is no active secondary market for debt instruments in all GCC countries. Given the relatively high liquidity measure, 14.4% for the GCC firms compared to only 5.6% of UK firms (A. Ozkan & N. Ozkan, 2004), this paper conjectures that GCC corporate managers consider the liquidity measure (non-cash assets) as an important source of financing. This helps explain the relatively low debt ratio and the relatively high liquidity ratio. Table 1 also shows that profitability, as indicated by ROA, is relatively comparable to that of firms in several other countries (see, for example, Rocca et al., 2019). Considering the median value, the level of cash of the GCC firms over the years (see Figure 1) shows a downward trend, which is opposite to what is documented in the related literature for firms in the western world, where cash levels show a secular increase over time (e.g., Bates et al. (2009) document a sharp increase in the cash-to-asset ratio from about 10% in 1980 to about 23% in 2006).

2.2. The regression models

This study examines a relationship between corporate cash holding and corporate performance for a set of nonfinancial firms in the GCC countries. This is tested by the following model:

$$Performance = f\{cash\ holding + \\ + control\ variables\}. \tag{1}$$

Following the bulk of the empirical literature, this study's proxy for performance is based on both the return on assets (an accounting-based performance measure) and Tobin's Q (a market-based performance measure). ROA is measured by net income divided by total assets (GCC firms are tax-free). Tobin's Q is measured as the market value of a firm plus total assets minus equity, all divided by total assets (see Craswell et al., 1997). This study follows Opler et al. (1999) in normalizing cash with net assets (book value of total assets minus cash and cash equivalents, minus marketable securities), which is the standard definition of cash holdings. To test a relationship between cash level and corporate performance, some control variables must be considered as they tend to have a moderating effect on the relationship between cash level and corporate performance. These are:

- Liquidity (the difference between current assets and current liabilities, all normalized by total assets);

- Leverage (the ratio of total debt to total debt plus equity);

- Financial constraint, proxied by Kaplan and Zingales (1997) index of financial constraints. The KZ index, as in Baker et al. (2003), can be displayed with the following linearization:

$$KZ\ Index = (-1.002 \cdot Cash\ flow) + \\ + (3.139 \cdot Leverage) - \\ - (39.368 \cdot Dividends) - (1.315 \cdot Cash), \tag{2}$$
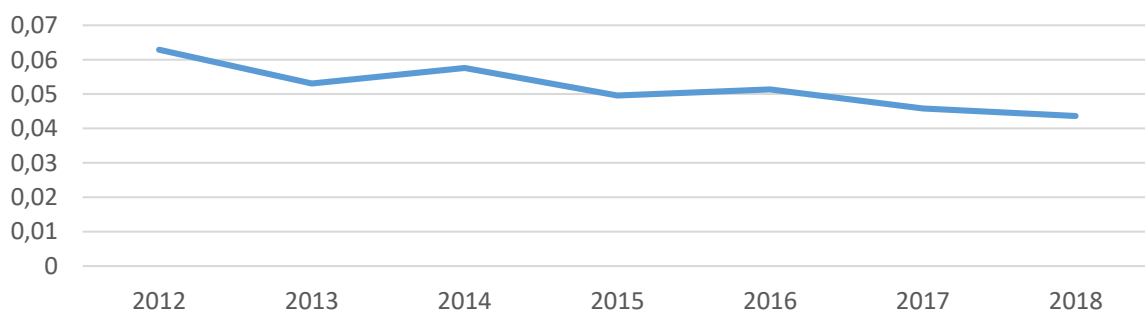
Figure 1. Median values of the cash ratio over time for GCC firms

where *Cash flow* reflects the free cash flow as defined by Bloomberg, dividend controls for a firm's total dividends paid, and *Cash* is total cash holding plus marketable securities, both scaled by beginning-of-year total assets.

- Growth in sales (the change in annual sales);

- Tangibility (the ratio of tangible assets to total assets);

- Size is the log (assets).

Panel data models are utilized (i.e. fixed effect and random effect models), where a preference is made between the two according to the Hausman test. While panel models control for time-invariant unobserved firm-specific factors, they do not consider any potential endogeneity problem (the potential reverse causality between cash holding and performance). Hence, an instrumental variable (IV) estimation method (the GMM) is employed to provide consistent parameter estimates (Arellano & Bond, 1991). It is thought that the endogeneity problem would most likely arise since any external and random shock that forces firm managers to change their firms' cash level would also impact other firm-specific factors that are believed to affect the cash level, such as financing

and growth decisions.

3. RESULTS

3.1. Performance effects of the cash level

Table 2 illustrates the statistical significance of the effect of the cash level on GCC firms' performance. The results show that the cash ratio, overall, significantly and positively influences firm performance in all the regression models. For example, considering the fixed effect (FE) model, the results reveal that if the cash level goes up by 1%, firm performance (ROA) would increase by 0.158%, while firm value (Tobin's Q) would increase by 0.098%. All the control variables retain their expected sign. For example, the results show that the higher the debt level, the lower a firm's profitability, as debt service is always deducted from profitability, which supports the expectations of mainstream finance.

Furthermore, the results show that firm size positively influences profitability. That is, larger firms tend to have relatively more profitable and better growth opportunities. However, when Tobin's Q is used to proxy for corporate performance, firm

Table 2. Results of the effect of cash level on GCC firms' performance

Variable	ROA			TQ		
	FE	Pooled	GMM	FE	Pooled	GMM
C	−2.007	−0.17	−0.17	15.832	1.476	1.476
	(0.0001)	(0.0001)	(0.0088)	(0.0001)	(0.0001)	(0.0001)
CASH	0.158	0.088	0.088	0.098	0.775	0.775
	(0.0001)	(0.0010)	(0.0001)	(0.7595)	(0.0101)	(0.0101)
LEV	−0.314	−0.178	−0.178	0.336	−1.033	−1.033
	(0.0001)	(0.0001)	(0.0001)	(0.2119)	(0.0001)	(0.0001)
GROWTH	0.004	0.007	0.007	0.036	0.03	0.03
	(0.0402)	(0.0324)	(0.0259)	(0.0063)	(0.0353)	(0.0353)
SIZE	0.108	0.011	0.011	−0.73	−0.006	−0.006
	(0.0001)	(0.0001)	(0.0003)	(0.0001)	(0.6013)	(0.6013)
TANG	−0.086	0.052	0.052	−0.367	0.487	0.487
	(0.0131)	(0.0001)	(0.0001)	(0.4503)	(0.0004)	(0.0004)
Adj R^2	0.505	0.117	0.117	0.757	0.059	0.059
Obs.	1333	1333	1333	1282	1282	1282
Prob (*J*-Statistic)			0.2027			0.055
AR(1) Arellano-Bond			0.259			0.3074
AR(2) Arellano-Bond			0.788			0.8124

Note: All variables are defined in the appendix; *p* values are in parentheses; White's robust cross-section heteroskedasticity procedure is performed. In all regressions, the Hausman test shows the fixed effect model is preferred to the random effect model. "Obs." are firm-year observations.

size becomes far less of an issue concerning its effect on firm value (except when considering the fixed effect model). As expected, the results also show that growth opportunities have a positive effect on corporate performance. The results in Table 2 also show the tangibility measure to be indicative of firm performance.

Interestingly, employing the more robust GMM method confirms the results of the other statistical models. For example, considering the GMM model, an increase in the cash level of about 1% leads to an increase in ROA of 8.8%. Examining the over-identifying restrictions and whether the employed instruments in the two GMM models are independent of the unobservable error process, the Hansen (1982) *J*-statistic value accepts the orthogonality assumption considering both ROA and Tobin's Q, which indicates the validity of the chosen instruments. Furthermore, the serial correlation test of AR(1) and AR(2) (Arellano & Bond, 1991) in both GMM models confirms that there is no serial correlation in the error terms. Hence, it is fair to conclude that the moment conditions are correctly specified.

3.2. Determinants of cash level

The crux of the finance stream supports the view that firms usually tradeoff the low/no return earned on cash and liquid assets with the cost of external financing, if needed. This study complements the related literature by examining one additional factor, the effect of product competition (indicated by market share) among firms as one exogenous cash level determinant. Market share implicitly points out the magnitude of demand on a firm's products (Cunha & Pollet, 2020). Table 3 shows the results of testing the empirical determinants of the cash level for the GCC corporate sector. The results, in all regressions, show the firm market share to be an important factor in determining corporate cash level. The results also show that for each 1% increase in market share, the current level of cash would increase by 8.8% (considering pooled and GMM models). Furthermore, the results show a positive relationship between the free cash flow and the firm cash level, which supports the view of less signaling to the market (that is usually associated with external financing in case of a

Table 3. Empirical determinants of cash level for GCC firms

Variable	Pooled	FE	GMM	Pooled	FE	GMM
C	0.08615	0.0916	0.0843	0.056942	0.015481	−0.19073
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0260)	(0.0004)
MS	0.0878	−0.0111	0.0886	0.081192	0.146702	0.0972
	(0.0001)	(0.8418)	(0.0001)	(0.0001)	(0.0453)	(0.0316)
FCF				3.72E−11	5.21E−11	2.20E−10
				(0.0031)	(0.0017)	(0.0010)
LIQ				0.280769	0.363687	0.2349
				(0.0001)	(0.0001)	(0.0001)
DP				0.0065	0.008	0.0295
				(0.3576)	(0.5046)	(0.0001)
FINCONS				2.69E−12	0.0632	8.53E−12
				(0.0115)	(0.1869)	(0.0176)
CAPEX				3.40E−11	6.48E−11	5.90E−11
				(0.0025)	(0.0047)	(0.2256)
CCC				−0.00016	−5.24E−8	−0.0002
				(0.0001)	(0.8417)	(0.0001)
Prob(J-statistic)			0.0001			0.5579
AR(1) Arellano-Bond			0.0001			0.628
AR(2) Arellano-Bond			0.7433			0.464
Adj R2	0.008	0.585	0.009	0.247	0.653	0.233
Obs.	1909	1909	1603	785	785	644

Note: All variables are defined in the appendix; *p*-values are in parentheses; White's robust cross-section heteroskedasticity procedure is performed. In all regressions, the Hausman test shows the fixed effect model is preferred to the random-effect model. "Obs." are firm-year observations.

high level of cash flow). Besides, the results show a positive and significant effect of liquidity on the firm cash level, as liquidity may be sought as a complement to the cash level. However, the payment of dividends seems to have only a partial influence on the cash level. The p-value of the dividend payment coefficient is far above the 5% level; nevertheless, when considering the more robust GMM method, dividend payment appears to have a high influence on the cash level. The results in Table 3 also show that the level of the financial constraint is, as expected, an influential factor on the cash level of the GCC firms, as firms do their best to defend themselves against periodic reductions in finance by having greater cash level at certain times. In addition, the negative effect of the cash conversion cycle on the cash level reinforces the view that the longer the period a firm takes to collect its cash, the higher will be the firm cash level. The lower part of Table 3 includes the robustness check of the GMM method where the *J*-statistic value confirms the validity of the instruments chosen for the analysis. The Arellano-Bond two statistics confirm the inexistence of the serial correlation, and hence the validity of the obtained results.

4. DISCUSSION

The first relationship this study examines is the effect of cash level on the corporate performance of the GCC firms. The results in Table 2 directly support the precautionary motive of cash hoarding. That is, the available cash is used to support the firm's productive activities in times of cash scarcity and also to have a sufficient financial buffer to enable investment opportunities that would have otherwise been missed (Pinkowitz et al., 2007; Opler et al., 1999). This result supports both the transaction cost reduction motive, which arises in many business situations where firms balance the scale economies for the frequent raising of external financing with having a higher cash level (see, for example, Almeida et al., 2004) and the trade-off hypothesis (where managers maximize their firm value, they tend to weigh the marginal costs with the marginal benefits of hoarding more cash). This result is in line with the findings of Rocca et al. (2019),

Azamt (2014), and Ameer (2021) who all document a significant positive effect of the cash level on a firm's ROA and Tobin's Q, even when using different measures of firm value. The crux of the results in Table 2 suggests that the high cash stockpile of GCC firms significantly supports their performance. This conclusion partially contradicts that of Schweitzer and Reimund (2004) who found that firms with excess cash levels tend to overinvest in other operating assets, and therefore tend to experience a lower profit level and eventually underperform their peers. The control variables in Table 2 seem to hold their predicted effect on the cash level. For example, considering the debt burden on a firm's profitability, the results show that there is a significant negative relationship between debt level and corporate performance, which supports the findings of Rocca (2016), but contradicts those of Azmat (2014). Also, the results document a positive effect of firm size on corporate profitability, given that larger firms tend to experience more investment opportunities, and so are most likely to enjoy better profitability. Nevertheless, the results show a negative effect of size on firm value (as indicated by Tobin's Q), a result that is in line with Azmat's (2014) findings. This could be a sign that large firms in the GCC are subject to higher costs, and therefore have less firm value. The results also show a positive effect of growth opportunities on corporate performance, which is supported by Rocca et al. (2019). The positive effect of tangibility on firm performance could indicate that firms with more tangible assets (those that could be effortlessly converted to cash) tend to hoard relatively lower cash levels in order to minimize opportunity costs of having less cash, a result that is supported by Rocca et al. (2019). Interestingly, and unlike the documented evidence, the financial constraint effect on performance was tested and found to be highly negligible (about 2.5E-9), hence, it is removed from the analysis. When employing the GMM method, the results are clearly analogous to the main conclusions obtained so far concerning the significant positive relation between cash level and corporate performance. Even the magnitude of the effect is very similar (8.8%) when comparing the pooled method with the more robust method, the GMM, which encourages confidence in the obtained results.

The second relationship this study explores is the firm-specific factors that significantly determine the cash level of the GCC firms. The results in Table 3 show the cash flow to have a significant and positive effect on the corporate cash level. However, the magnitude of the effect is trivial, compared to what is documented by Huang et al. (2013). Also, this finding partially supports the evidence of Guney et al. (2007) in the sense that if the cash flow variable can be a valid indicator for growth opportunities, the cash flow should have a positive effect on cash level, which is against the widely accepted evidence, as confirmed by Kim et al. (1998). The results also show the corporate cash level to be associated with a higher liquidity level (a result that is in line with those of Huang et al. (2013) but contradicts those of Guney et al. (2007), Couderc (2006), and A. Ozkan and N. Ozkan (2004)). This indicates that GCC firms consider or value their non-cash liquid assets as an important complement (but not a substitute) to their cash holding so as not to forgo valuable investment opportunities. In other words, it seems that corporate GCC managers believe that the costs of converting non-cash liquid assets into cash are much lower than those in the case of other assets. At the same time, with the availability of liquid assets, GCC firms seem not to use external financing, which may explain the lower debt ratios of the GCC firms, a conjecture raised by this study (see Table 1).

Intriguingly, dividends paid seem to have no effect at all on cash levels for GCC nonfinancial firms, which partially contradicts the evidence reported by Huang et al. (2013), Shah (2011), A. Ozkan and N. Ozkan (2004), and Guney et al. (2007) who all document a significant effect of the dividends paid out on corporate cash level. It seems that the GCC firm managers do not view dividends as a substitute for cash holding, so GCC managers might hoard cash as a way of supporting their firms' dividend payments, a case that might be explained by the significant value of dividends as shown by the GMM method.

Additionally, the cash level of GCC firms seems to be associated discretely and positively with the situation of a firm being financially constrained. The results show that GCC firms seem naturally inclined to accumulate more cash, probably due to the knowledge that they have full access to inter-

nal financing from non-cash liquid assets as well as from government subsidies. This conjecture supports Almeida et al. (2003) and Orlova and Rao (2018) who both show that financially constrained firms adjust faster to their target cash level.

Capital expenditure, however, seems not to be vital in affecting cash level (considering the 5% significance level). This finding supports the conclusions of Huang et al. (2013) and Couderc (2006) but is in opposition to those of Guney et al. (2007). Ostensibly, GCC firms with relatively high capital expenditures seem to require bigger cash balances in order to fund more profitable investments. Although this result seems to oppose the transaction cost model, one possible explanation is GCC firms dependency on either internal financial resources or lavish government subsidies (Alshammari, 2018).

The results also show the cash conversion cycle to be an important factor in determining the cash level of the GCC corporate sector as it captures how long it takes a firm to recoup its cash. That is, the longer the cash conversion cycle, the more cash a firm needs. Hence, as the short cycle boosts GCC firms' abilities to restore their cash levels more quickly, GCC firms would suffer a cash shortage sooner.

4.1. A robust check

To corroborate the obtained results in Table 2, two tests have been carried out, and their results are not reported for brevity reasons, since the results are very analogous to those in Table 2. The first test uses piecewise regressions and aims to examine the relationship between cash level and corporate performance, considering different sizes of firms (small, medium, and large, based on the mean and standard deviations of firms' size). All in all, the results of the piecewise regressions show almost the same positive relation, and nearly the same magnitude, of the effect of cash on firm performance.

The second test aims to check for monotonicity of the results in Table 2. Hence, the effect of different cash levels on corporate performance is tested by regressing both the firm ROA and Tobin's Q against different levels of cash holding. Three

cash levels are calculated based on the cash mean and standard deviation. The first cash level considers only the cash ratio below 3.5% (this relates to 724 observations). The second cash level considers cash ratios above 10% (relates to 558 observations). The third cash level considers the cash ratios between 3.5% and 10% (relates to 661 observations). The results also confirm the significant positive effect of all three cash levels on firm performance.

CONCLUSION

This study aims to provide evidence of the influence of cash level on corporate performance, as well as what determines the cash level of the nonfinancial corporate sector of the GCC countries from 2012 to 2018. The results of the study show that cash level is a credible determinant of corporate performance and firm value. However, unlike the related mainstream literature (e.g., Ozkan et al., 2004), this study demonstrates a *positive* relationship between cash level and corporate performance. Further tests show the market share variable to exert a significant and positive impact on corporate cash level, and hence to be a major determinant of cash level in the GCC countries. Finally, the results suggest that higher cash levels are associated with higher levels of liquidity and financial constraints, but with lower levels of the firm cash cycle. Dividend payments are found to be irrelevant to cash level, which goes against the well-documented evidence in the previous literature. The findings of this study are robust to various and sound econometric specifications as well as to different parametrizations of the considered variables.

The results of this study are unique in two ways. First, the main result of this study, the positive effect of cash on firm performance, is explained by the fact that GCC corporate managers have distinct attitudes due to operating in a business setting characterized by tax-free and government-controlled economies in which generous government subsidies are usually employed to boost all sectors. GCC managers, in their corporate practices, consider their non-cash liquid assets as a dominant complement (not a substitute) to cash holdings, instead of recognizing external debt as a complement to cash holding. This is also due to the fact that GCC managers *inexplicably* disfavor debt as a source of financing, as debt level is found to be far below international norms (Table 1). Second, this study brings a new dimension of cash determinants by incorporating product competition (indicated by a firm's market share) as a significant exogenous factor. The product competition variable is usually examined in a distinct line of literature, which is considerable and well-established, and this study connects to it.

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AUTHOR CONTRIBUTIONS

Conceptualization: Turki Alshammari
Data curation: Turki Alshammari
Formal analysis: Turki Alshammari
Funding acquisition: Turki Alshammari
Investigation: Turki Alshammari
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APPENDIX A

Table A1. The variables defined

Variable	Definition
Cash	Cash and cash equivalents plus marketable securities divided by (total assets minus cash and cash equivalents minus marketable securities)
Liq	Liquidity = (current asset – current liabilities) / total assets
ROA	Return on assets = net income divided by total assets
Size	Log(total assets)
TQ	Tobin's Q = {(market value of a firm + assets – equity) / assets}
Lev	Leverage = the ratio of total debt to total debt plus equity
Growth	The percentage change in sales
Tang	Tangibility = ratio of tangible assets to total assets
MS	The market share of a firm
FCF	The free cash flows as defined by Bloomberg
DP	The dividend paid = cash dividend paid to all stocks
FINCONS	The financial constraint KZ index
CAPEX	The capital expenditure as defined by Bloomberg
CCC	The cash conversion cycle = accounts receivable period + inventory period – accounts payable period