

Impact of Liquidity and Leverage on Performance: Panel Data Evidence of Hotels and Entertainment Services Industry in the MENA Region

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Abstract This study aims at determining the impact of liquidity and leverage on the performance of the Hotels and Entertainment Services Industry in the MENA region, using a sample of 71 selected publicly quoted firms in the cited industrial sector of the designated countries from the MENA region. A quantitative approach, pooled panel regression, univariate analysis, correlation, and descriptive statistics models are used by taking annual data of the Hotels and Entertainment Services Industry in the 2010 to 2020 period in the MENA region, available on the Thomson Reuters (Refinitiv) Database. An unbalanced cross-sectional data (panel data) comprising 677 firm-year observations for 71 firms is studied. The results revealed that liquidity (current ratio (CR)) has a significant and positive impact on the company performance (return on asset and return on equity (ROA & ROE)). Leverage (debt equity ratio (D/E)) has a significant and negative impact on performance (ROA and ROE). A further robustness test to the main model was conducted by modifying one of the variables, quick ratio (QR), which is the proxy for liquidity, and further classifying the MENA region as Gulf Cooperation Council (GCC) and non-GCC countries. As per the robust results, although the D/E has a negative relationship and the QR has a positive relationship with ROA and ROE in the MENA, GCC, and non-GCC regions, the QR and D/E significance levels are weak with ROE in the MENA region. In the GCC region, the D/E significance level is weak with ROA, and the QR and D/E significance levels are weak with ROE. In the non-GCC region, the QR significance level is weak with ROE, and the QR and D/E significance levels are weak with ROA. Due to the limitations on data availability, countries with lower economies in the selected region are ignored.

Keywords: Liquidity, Leverage, Performance, MENA, Services Industry

INTRODUCTION

The hotels and entertainment services are part of the hospitality industry. It has been termed by the World Travel and Tourism Council (WTTC) as a main driver in global value creation (EHL Insights, 2021). It not only facilitates economic prosperity, employment, and vital positive social impact on the society, but also provides unique opportunities to women, minorities, and youth. As per the Global Economic Impact and Trends report, in 2019, travel and tourism was one of the world's largest sectors, accounting for 10.4% of global GDP (USD 9.2 trillion), 10.6% of all jobs (334 million), and was responsible for creating one in four of all new jobs across

the world. Since the emergence of the coronavirus in 2019, due to unprecedented national and international movement restrictions, this sector suffered losses of almost USD 4.5 trillion, with its global contribution to GDP declining by 49.1%, compared to 2019, to reach only USD 4.7 trillion in 2020 (WTTC, 2021). As per the World Bank, the combined gross domestic product (GDP) in current US dollars of all the Middle East and North African countries (MENA) was USD 3.36 trillion (2019), of which the share of the total GDP generated by the travel and tourism industry in the Middle East and North African regions was USD 439 billion (WTTC, 2021). As the financial performance evaluation

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of this industry in the MENA region is the subject of this research work, an attempt is made to analyse the impact of liquidity and leverage on profitability (performance). Thus, in-depth relationships between liquidity and performance and leverage and performance have statically been analysed. The analysis has encompassed some quantitative approach, pooled panel regression, univariate analysis, correlation, and descriptive statistics models.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Hotels and Entertainment Services Industry – MENA Region

The MENA region includes a diverse group of 14 countries in the Middle East and four countries in North Africa. MENA is characterised as the birthplace and home to some of the most important religions and pilgrimage sites in the world. It may be stated that besides leisure and educational purposes, the rich history of pilgrimage, religious tourism, intangible urban heritage, and the historical geography of its role as a major transportation corridor in ancient times are the most common motivations for travel to the MENA region (Okafor, Khalid & Adeola, 2021). As per the World Bank, the number of international tourists who arrived in all the MENA countries was 115 million in 2019, whereas this figure would stand at 99 million, if we exclude the countries assumed for this study (World Bank). Among the MENA region, the six members of the Gulf Cooperation Council (GCC) have taken the initiatives of economic diversification and expansion, by reducing the reliance on oil revenue (Callen et al., 2014) and promoting investments in other sectors, such as the tourism and hospitality industry (Al-Shidhani & Tumati, 2021). Although the region's economic diversification is far from over, recent statistics indicate that in 2019, the total number of inbound tourists arriving at GCC countries totalled about 67 million (World Bank), with the total expenditure of these visitors around USD 81.1 billion (Tourism statistics, 2019). A global pandemic challenge, however, confronted the growth of the world's economy, including the tourism and hospitality industry, as the World Health Organization (WHO) declared the Covid-19 outbreak a global health emergency on January 30, 2020.

Liquidity of Firms

Liquidity is considered by many as the lifeblood of an enterprise, as it is fundamental in keeping a business alive (Pandey & Jaiswal, 2011). Along with profitability, liquidity management is vital for business continuity (Uyar, 2009). A proper management of working capital is necessary to balance liquidity and profitability (Azam & Haider, 2011).

Keeping a certain level of liquidity requires tying up funds in liquid assets, thereby keeping them away from investment activities with better returns (Zainudin, 2006). Current assets and current liabilities must be planned and controlled in such a way that the enterprise is able to pay for its short-term liabilities, and secondly, able to prioritise funds allocation on assets with a higher rate of return (Eljelly, 2004). Literature analyses liquidity from a static and dynamic viewpoint. The static analysis utilises traditional balance sheet ratios, such as current ratio and quick ratio, while the dynamic analysis focuses on ongoing liquidity, utilising to such effect the cash conversion cycle (Uyar, 2009). One of the commonly used ratios in the static analysis of liquidity is the current ratio. A high current ratio means that an enterprise has invested considerable funds in current assets, which in turn may indicate a lower overall rate of return on investments. On the contrary, a low current ratio may be an indicator of a better use of funds return-wise, but could mean that the company is at risk of not being able to meet day-to-day dues (Vishnani & Shah, 2007). As Raheman and Nasr (2007) state, the excessive levels of current assets can result in a firm's realising a substandard return on investment, while keeping too few current assets may make it difficult for the enterprise to maintain smooth operations.

Liquidity-Profitability Relationship

A large body of literature has addressed the topic of the liquidity-profitability relationship. Over the years, scholars have used a wide range of liquidity measures, such as quick ratio, current ratio, working capital, cash conversion cycle, receivable collection period, inventory conversion period, and so on. It was found that not all researchers agree on the significance of such a relationship or the nature of it. The reviewed literature has been classified into three categories: 1) literature that supports a positive relationship, 2) literature that supports a negative relationship, and 3) literature that suggests no relationship at all, at least not a significant relationship.

Many prior research works have used the cash conversion cycle as an inverse measure of liquidity. Whenever such a measure is used, a negative relationship between cash conversion cycle and profitability indicates a positive liquidity-profitability relationship. For instance, Ahmadi et al. (2012) found a negative relationship between profitability and cash conversion cycle in the case of companies listed in the Teheran Stock Exchange, implying a positive liquidity-profitability relationship. Lazaridis and Tryfonidis (2006) also demonstrated a positive relationship between liquidity and profitability by means of the cash conversion cycle. Studies with similar results were conducted by Bagchi and Khamrui (2012), Uyar (2009), Quayyum (2011) and Charitou et al. (2016).

Other studies have used a combination of cash conversion cycle and other liquidity measures. Seyoum et al. (2016) came to the conclusion that cash conversion cycle, inventory conversion period, and payment deferral period negatively affect ROA. Alavinasab and Davoudi (2013) confirmed the positive liquidity-profitability relationship through cash conversion cycle and current ratio. Azam and Haider (2011) concluded that inventory turnover in days and cash conversion cycle have a negative relationship with both ROI and ROE, while the current ratio is positively associated with both those indicators. Ben-Caleb et al. (2013) revealed that current ratio and quick ratio are positively correlated with ROCE, whereas cash conversion period is negatively correlated. However, they concluded that such a correlation is not very strong. Samiloglu and Demirgunes (2008) were able to prove the positive relationship between liquidity and profitability through receivables collection period and inventory conversion period, but were not able to find any significant relationship between liquidity and profitability through cash conversion cycle. Vural et al. (2012) found a positive correlation between liquidity and profitability, with receivables collection period and cash conversion cycle. Bolek (2013) investigated the liquidity-profitability relationship using three dimensions of liquidity, namely the current ratio, the free cash flow to total assets ratio, and the cash conversion cycle. Based on all three dimensions, he determined that liquidity and profitability are positively related.

Khidmat and Rehman (2014) used the liquidity ratios (CR and QR) as measures of liquidity, and found that they affect both ROA and ROE positively. However, Dsouza and Habibniya (2021) found that current ratio influenced mostly ROE, and the quick ratio influenced ROA. On the other hand, Karim et al. (2018) found that current ratio is negatively related to ROE, while the relationship with ROA was found to be positive.

Karadagli (2012) determined through the study of cash conversion cycle and net trading cycle that the relationship between liquidity and profitability is positive for large companies, but it turns negative for smaller companies. On the other hand, Mumbi et al. (2015) investigated the liquidity-profitability relationship in small and medium enterprises and confirmed a positive correlation, regardless of the company size. In a similar study on Spanish SMEs, Baños-Caballero et al. (2012) demonstrated that the relationship between working capital level and profitability is concave. According to them, companies maintain their working capital at an optimal level to maximise profitability without incurring too much risk.

Other studies that support the positive liquidity-profitability relationship include the research done by Zainudin (2006), Mandal and Goswami (2010), Khidmat and Rehman (2014), Pouraghajan and Emamgholipourarchi (2012), Awad and

Jayyar (2013), Manyo and Ogakwu (2013), Kyule (2015), Kothari and Sodha (2018), and Samo and Murad (2019).

Other studies have found a negative relationship between liquidity and profitability, thus supporting the liquidity-profitability trade-off theory. For instance, Eljelly (2004) used the current ratio and cash conversion cycle to examine the liquidity-profitability relationship on a sample of companies in Saudi Arabia. He found that this relationship was negative. Zygmunt (2013) established that the dependence direction between receivable conversion period (which is inversely related to liquidity) and profitability is positive. Raheman and Nasr (2007) found the liquidity-profitability relationship to be negative and significant, while Suresh et al. (2016) showed that there is a weak negative correlation between liquidity and profitability. Sandhar and Janglani (2013) discovered that current ratio and liquid ratio were negatively related to ROA and ROI.

There is also a third group of authors who either found no relationship between liquidity and profitability, or their results were inconclusive. Bereznicka (2014), despite finding a correlation between the liquidity ratio and ROA, could not determine whether it was positive or negative. Afeef (2011) found no significant relationship between profitability and cash conversion cycle or current ratio, while Agha (2014), D'souza and Pandey (2017), and Alarussi and Alhaderi (2018) found no significant relationship between current ratio and profitability.

Leverage

Just like the operating leverage helps a company increase profits rapidly once it is past the break-even point, financial leverage may help a company increase profitability for its shareholders if return on investment outweighs financing costs. In both cases, leverage implies bearing a fixed cost in return for higher rates of return. Specifically, in the case of financial leverage, these fixed costs present themselves in the form of financing costs. Financial leverage can be defined as the ratio of long-term debt to total long-term capital. It can also be defined as the portion of capital available to the enterprise for which it has to bear a fixed cost (Iqbal et al., 2013). Since debt requires paying a fixed rate of interest, it is usually used successfully by companies to leverage (increase) shareholders' profits (ROE), as long as satisfying returns (higher than interest rates) on assets are guaranteed (Singapurwoko & El-Wahid, 2011). However, the use of too much debt may affect return on equity negatively. Return on equity may be decreased if a firm fails to achieve relatively high profits (Vintila & Florinipa, 2012). There is an abundance of literature addressing financial leverage and profitability. This interest may be explained firstly by the importance of profitability as an indicator of business efficiency, and secondly, the disagreement among

scholars on the relationship between financial leverage and profitability (Akinlo & Asaolu, 2012).

Leverage-Profitability Relationship

As in the case of the liquidity-profitability relationship, scholars are largely divided into three groups when it comes to the leverage-profitability relationship. Most of the works in this review support a negative relationship between financial leverage and profitability; another group of researchers are in favour of a positive relationship; and a third group maintain that there is no relationship at all.

Ahmad et al. (2015) examined the impact of financial leverage on profitability, and found that financial leverage is inversely related to profitability. Similarly, Akinlo and Asaolu (2012) and Demiraj et al. (2023) concluded that financial leverage has a negative effect on profitability. Alarussi and Alhaderi (2018) showed that debt/equity ratio and leverage ratio negatively affect profitability. Alavinasab and Davoudi (2013) found an inverse association of debt/assets ratio to ROA and ROE. Samo and Murad (2019) also showed that D/E ratio has a negative effect on ROA and ROE, but in the case of ROA, the effect was not significant. Avdalović (2018) established that debt/equity ratio exhibits a significant negative relationship to corporate profitability. Bintara (2020) found a negative leverage-profitability relationship. According to Malik (2011), Minnema and Andersson (2018), and Rahman et al. (2020), the leverage-profitability relationship is negative and significant. Other authors who support the negative relationship between leverage and profitability are Raheman and Nasr (2007), Iqbal et al. (2013), Khidmat and Rehman (2014), and Kothari and Sodha (2018).

A few works that support a positive leverage-profitability relationship were found. For instance, in a study of profitability determinants, Devi and Devi (2014) found that financial leverage and profitability are positively correlated. Kartikasari and Merianti (2016) examined the effect of firm size and leverage on profitability, and came to the conclusion that debt ratio has a significant positive impact on profitability. Nugraha et al. (2021) studied the effect of inflation, leverage, and size on firms' profitability. They found that leverage helped increase profitability. Singapurwoko and El-Wahid (2011) showed that debt, firm size, and operational decisions have a positive and significant effect on profitability. And finally, Vintila and Florinipa (2012) determined that high debt level had a significant positive effect on ROE.

A third group of researchers argue that there is no relationship between leverage and profitability, or that this relationship is U-shaped. Reddy and Narayan (2018), in their study on the impact of liquidity and leverage on profitability, found that leverage had no impact on profitability. Soni

and Trivedi (2013) also concluded that financial leverage had no significant relationship with profitability. On the other hand, Akhtar et al. (2021) found that the leverage-profitability relationship is U-shaped (inverted), meaning that the relationship is positive up to a certain point, but turns negative beyond that point. Similar conclusions were drawn by Jang and Tang (2009) and Dalci (2018), suggesting that companies should find the optimal level of financial leverage for maximum profitability.

When it comes to the impact of liquidity and leverage on the profitability of hotels and entertainment services industry, the literature is limited. Thus, by sharing similar motivation with Samo and Murad (2019), it was decided to test the impact of liquidity and leverage on the performance of the firms from the MENA region (Hotels and Entertainment Services Industry). However, considering liquidity as a relevant measure to analyse a firm's performance, the first hypothesis is formulated as follows:

H1. Liquidity has a Significant Positive Impact on Firm Performance

The impact of leverage on firm's performance also has to be considered to analyse the overall financial health of the organisation and to channel proper decision-making towards the hierarchy of preferences with respect to funding sources (pecking order theory). Thus, it encouraged the development of the second hypothesis as follows:

H2. Leverage has a Significant Negative Impact on Firm Performance

SAMPLE AND DESCRIPTIVE STATISTICS

Our sample consists of all listed firms in the period 2010-2020 in the MENA region, available on the Thomson Reuters (Refinitiv) Database. To minimise the potential effect of national culture towards the tourism industry and the behaviour towards liquidity and leverage, the focus of this study is limited to the selected countries. The firm-year data from Bahrain, Egypt, Jordan, Kuwait, Morocco, Oman, Qatar, Saudi Arabia, Iraq, Palestinian territories, and the United Arab Emirates are pooled. Firms that have insufficient or missing financial information for the key variables are excluded. Erroneous data such as negative revenue and negative asset values are also excluded. After the reductions, an unbalanced cross-sectional data (panel data) comprising 677 firm-year observations for 71 firms was reached. Outliers were not removed; instead, all the variables were winsorised at 2% (p.2 98) level. The data were processed using STATA software package. Table 1 shows the number of observations, the mean values, the standard deviation, and the highest and the lowest observations of each variable for 2010-2020.

Table 1: Descriptive Statistics of the Variables

Variables	Observations (N)	Mean	Std. Dev.	Min	Max
Current Ratio	677	2.769836	4.613916	0.070363	27.52724
Debt Equity Ratio	677	0.258936	0.410647	0	1.913282
Return on Asset	677	0.03136	0.104854	-0.3615	0.263117
Return on Equity	677	0.049308	0.172812	-0.66491	0.43727
Size: Sales Revenue	677	15.99191	2.186155	9.90239	19.74191

It has been observed that the mean of current ratio is 2.76 and the standard deviation is 4.61. A current ratio higher than 1 shows a conservative behaviour. The firms prefer to avoid liquidity crisis. To maintain the required liquidity, they have higher current assets compared to the current liabilities. The standard deviation of 4.61 explains that the firms across the sample do not practice diverse liquidity behaviour. The firms have a similar liquidity practice. However, the diversity of the current ratio observations varied from a minimum of 0.07 to a maximum of 27.52. The mean observation of debt equity ratio was 0.25 and the standard deviation was 0.41. The mean observation states that the debt was always minimum, compared to the equity in the capital structure. This supports the conservative approach towards liquidity followed by the

firms. The standard deviation of 0.41 rationalises similar debt practices followed by all the firms across the sample. The minimum observation was 0 and the maximum 1.91. The return on assets has a mean of 0.03 and standard deviation of 0.10; the return on equity has a mean of 0.04 and a standard deviation of 0.17. A positive mean shows a stable behaviour on the performance of the firms. The standard deviation shows minimum variations across the firms. The return on assets minimum observation is -0.3 and maximum is 0.26. The return on equity minimum observation is -0.66 and maximum is 0.43. The sales revenue had a mean of 15.99, standard deviation of 2.186, and a minimum and maximum observations of 9.90 and 19.74, respectively.

Table 2: Correlation among the Variables

Variables	Return on Asset	Return on Equity	Current Ratio	Debt Equity Ratio	Size: Sales Revenue
Return on Asset	1				
Return on Equity	0.8021	1			
Current Ratio	0.0686	0.0286	1		
Debt Equity Ratio	-0.1433	-0.1838	-0.1721	1	
Size: Sales Revenue	0.2832	0.1819	-0.2895	0.2783	1

The pair-wise correlation among the variables is presented in Table 2. The correlation coefficients between current ratio and return on assets and return on equity were positive (0.068 and 0.0286 respectively). This means that the variables are related and move in the same direction. Additionally, the correlation coefficients between debt equity ratio and return on assets and return on equity were negative (-0.143 and -0.183, respectively). This means that the variables are related and move in the opposite direction. The correlation coefficients between sales revenue and return on assets and return on equity were positive (0.283 and 0.0181, respectively).

The aim of the correlation analysis was to show the extent of degree of association among the variables used in the analysis and to prevent collinearity among the variables. The effects of the explanatory variables on return on asset and return on equity were obtained from the regression.

VARIABLES

In this study, firm's performance is the dependent variable, measured using ROA (Dsouza et al., 2022; Habibniya & Dsouza, 2018; Demiraj et al., 2023; Habibniya et al., 2022; Dsouza et al., 2022; Demiraj et al., 2022; Demiraj et al., 2023) and ROE, while current ratio, representing liquidity; debt equity ratio, representing leverage; and the natural logarithm of sales revenue, representing firm size, are the independent variables. The series on ROA and ROE (proxies for firm's performance) were sourced from the financial statements of the listed firms in the MENA region – Hotels and Entertainment Services Industry, obtained from Thomson Reuters (Refinitiv) website, while the series' current ratio (proxy for liquidity), debt equity ratio (proxy for leverage) (mentioned in Table 3), and firm size, represented by the natural logarithm of sales revenue (proxy for control variables), were sourced from the individual firms' financial statements. (Note: As the study is based on the service industry, firm size can well be described with sales revenue.) The study used an unbalanced panel data from 2010 to 2020.

Table 3: Variables and Measurements

Variables	Measurement
Return on Assets (ROA)	Net Income after Taxes/Total Assets
Return on Equity (ROE)	Net Income after Taxes/Total Equity
Current Ratio (CR)	Total Current Assets/Total Current Liabilities
Debt Equity Ratio (D/E)	Total Debt/Total Equity

significance of the differences across the firms, and the specific effects of the chosen variables within the firms over the period.

Performance = f (Liquidity, Leverage, Size)

Performance^{it} =

$$\propto \alpha it + \beta 1 LIQUIDITY + \beta 2 LEVERAGE + \beta 3 SIZE + Fixed\ Effects + \epsilon it$$

Where, PERFORMANCE refers to ROA or ROE of firm i in year t, LIQUIDITY refers to current ratio, LEVERAGE refers to debt equity ratio, and SIZE refers to the natural logarithm of sales revenue. Country and year fixed effects are included in the model. ϵit denotes the error term.

RESEARCH MODEL

To test our hypothesis 1 and 2, the following panel model was adopted. The study adopted this model to depict the

RESULTS AND DISCUSSION

Univariate Analysis

Table 4: Results of CR, D/E, and Size by the Quantiles of ROA

Return on Asset	Q1		Q2		Q3		Q4	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Current Ratio	2.443241	1.001355	3.056799	1.136745	2.727175	1.505934	2.854062	1.862515
Debt Equity Ratio	0.388839	0.111451	0.227744	0.125246	0.243858	0.087072	0.174534	0
Size: Sales Revenue	14.94606	14.99214	15.82422	15.53299	16.4583	16.85749	16.74525	17.14149

Table 4 shows the mean and median of the variables (current ratio, debt equity ratio, and size) by the quantiles of return on asset. The mean of the current ratio and size show an increasing trend from Q1 to Q4. This indicates a direct and positive behaviour with the growth in ROA. However,

the change in the mean of current ratio does not have an increasing trend from Q2 to Q3. The mean of the debt equity ratio shows a decreasing trend from Q1 to Q4. This indicates an inverse behaviour with the growth in ROA.

Table 5: Results of CR, D/E, and Size by the Quantiles of ROE

Return on Equity	Q1		Q2		Q3		Q4	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Current Ratio	2.460515	1.091349	3.31594	1.267457	2.930423	1.508111	2.374295	1.559702
Debt Equity Ratio	0.400558	0.133494	0.171972	0.100506	0.179352	0.066148	0.283024	0.076895
Size: Sales Revenue	15.08408	15.03267	15.78186	15.53299	16.35041	16.78235	16.75668	17.1984

Table 5 shows the mean and median of the variables (current ratio, debt equity ratio, and size) by the quantiles of return on equity. The mean of the current ratio has a negligible decrease from Q1 to Q4. The mean of size shows an increasing trend from Q1 to Q4. The trend of size indicates

a direct and positive behaviour with the growth in ROE. However, the change in the mean of current ratio does not have an increasing trend from Q2 to Q3. The mean of the debt equity ratio shows a decreasing trend from Q1 to Q4. This indicates an inverse behaviour with the growth in ROE.

Regression Results

Table 6: Results of the Effects of CR and D/E on ROA and ROE, as per OLS Regression

Variables	No Dummy	Year Dummy	Country Dummy	Year and Country Dummy	No Dummy	Year Dummy	Country Dummy	Year and Country Dummy
	Return on Asset	Return on Asset	Return on Asset	Return on Asset	Return on Equity	Return on Equity	Return on Equity	Return on Equity
Current Ratio	.003***	.003***	.005***	.004***	.002**	.002*	.004***	.003***
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
Debt Equity Ratio	-.058***	-.05***	-.051***	-.043***	-.104***	-.086***	-.095***	-.078***
	(.009)	(.009)	(.01)	(.009)	(.024)	(.023)	(.026)	(.025)
Size: Sales Revenue	.019***	.017***	.027***	.025***	.021***	.019***	.036***	.033***
	(.002)	(.002)	(.003)	(.003)	(.003)	(.003)	(.004)	(.004)
_cons	-.26***	-.238***	-.412***	-.373***	-.271***	-.215***	-.559***	-.479***
	(.035)	(.041)	(.052)	(.056)	(.059)	(.067)	(.081)	(.087)
Observations	677	677	677	677	677	677	677	677
R-squared	.152	.194	.241	.272	.096	.145	.232	.268
Adj R ²	.148	.177	.226	.245	.092	.127	.217	.241

Robust standard errors are in parentheses.

***p<.01, **p<.05, *p<.1

The results in Table 6 show that the coefficient of current ratio (CR) is positive and statistically significant at 1% significance level with respect to ROA and ROE. The current ratio has the highest coefficient of 0.005, with country as a dummy variable, with relation to ROA. This indicates that a unit increase in CR by the firms, with all other things being equal, will increase the firms' ROA by 0.005 units. Additionally, the current ratio has the highest coefficient of 0.004, with country as a dummy variable, with relation to ROE. This indicates that a unit increase in CR by the firms, with all other things being equal, will increase the firms' ROE by 0.004 units. The coefficient of debt equity ratio is negative and statistically significant at 1% significance level with respect to ROA and ROE. The debt equity ratio has the most negative coefficient of -0.058, with no dummy variable, with relation to ROA. This indicates that an additional unit in D/E by the firms, with all other things being equal, will decrease the firms' ROA by 0.058 units. Similarly, the D/E behaviour is the same with respect to ROE. It has the most negative coefficient of -0.104, with no dummy variable, with relation to ROE. This indicates that an additional unit in D/E by the firms, with all other things being equal, will decrease the firms' ROE by 0.104 units. It is evident from

the results that the firms practice well-managed liquidity and leverage policies. Liquidity (CR) has a significant and positive impact on performance (ROA and ROE). Leverage (D/E) has a significant and negative impact on performance (ROA and ROE) (Perinpanathan, 2014; Singh & Bansal, 2016; Ibhagui & Olokoyo, 2018).

Table 7: Results of the Fixed Effects of CR and D/E on ROA, as per Panel Data Regression

Variables	No Dummy	Year Dummy
	Return on Asset	Return on Asset
Current Ratio	.004**	.003
	(.002)	(.002)
Debt Equity Ratio	-.057***	-.042**
	(.017)	(.017)
Size: Sales Revenue	.048***	.04***
	(.012)	(.014)
_cons	-.727***	-.608***
	(.194)	(.216)

Variables	No Dummy	Year Dummy
	Return on Asset	Return on Asset
Observations	677	677
R-squared	.18	.221
Adj R ²	.176	.204
Hausman test (Prob>chi2)	0.0000***	0.0000***

Robust standard errors are in parentheses.

***p<.01, **p<.05, *p<.1

Table 7 presents the results of the fixed effects model, which has achieved the objectives of the study in relation to the impact of liquidity (CR) and leverage (D/E) on the performance (ROA) of the firms. Based on the Hausman test statistic (0.000), only fixed effects results are interpreted. Thus, the results in Table 7 show that the coefficient of current ratio (CR) is positive and statistically significant at 5% significance level, and the coefficient of debt equity ratio (D/E) is negative and statistically significant at 1% significance level. The CR has a positive coefficient of 0.004 and the D/E has a negative coefficient of -0.057, with no dummy variables, with relation to ROA. This indicates that an additional unit in CR and D/E by the firms, with all other things being equal, will increase the firms' ROA by 0.004 units and decrease the firms' ROA by 0.057 units. Liquidity (CR) has a significant and positive impact on performance (ROA). Leverage (D/E) has a significant and negative impact on performance (ROA).

Table 8: Results of the Fixed Effects of CR and D/E on ROE, as per Panel Data Regression

Variables	No Dummy	Year Dummy
	Return on Equity	Return on Equity
Current Ratio	.005*	.004
	(.002)	(.003)
Debt Equity Ratio	-.116**	-.083*
	(.045)	(.045)
Size: Sales Revenue	.068***	.055***
	(.019)	(.021)
_cons	-1.024***	-.8**
	(.304)	(.336)
Observations	677	677
R-squared	.146	.2
Adj R ²	.142	.183
Hausman test (Prob>chi2)	0.0000***	0.0000***

Robust standard errors are in parentheses.

***p<.01, **p<.05, *p<.1

Table 8 presents the results of the fixed effects model, which has achieved the objectives of the study in relation to the impact of liquidity (CR) and leverage (D/E) on the performance (ROE) of the firms. Based on the Hausman test statistic (0.000), only fixed effects results are interpreted. Thus, the results in Table 8 show that the coefficient of current ratio (CR) is positive and statistically significant at 10% significance level, and the coefficient of debt equity ratio (D/E) is negative and statistically significant at 5% significance level. The CR has a positive coefficient of 0.005 and the D/E has a negative coefficient of -0.116, with no dummy variable, with relation to ROE. This indicates that an additional unit in CR and D/E by the firms, with all other things being equal, will increase the firms' ROE by 0.005 units and decrease the firms' ROE by 0.116 units. Liquidity (CR) has a significant and positive impact on performance (ROE). Leverage (D/E) has a significant and negative impact on performance (ROE).

ADDITIONAL ANALYSIS

The MENA region is further analysed in detail, after being categorised as Gulf Cooperation Council (GCC) (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates) and non-GCC (Egypt, Jordan, Morocco, Iraq, and Palestinian territories) countries. Considering the above discussed main model, and the generated results with the accepted hypothesis, a robustness test to the main model by modifying one of the variables has been carried out. Keeping all the other variables as per the main model, the only changed variable is liquidity. Quick ratio (QR) is the proxy for liquidity.

$$\text{Quick ratio (QR)} = (\text{Total Current Assets} - \text{Inventory} - \text{Prepaid Expenses}) / \text{Total Current Liabilities}$$

Revised Research Model

Performance = f (Liquidity, Leverage, Size)

$$\text{PERFORMANCE}_{it} =$$

$$\alpha_{it} + \beta_1 \text{LIQUIDITY} + \beta_2 \text{LEVERAGE} + \beta_3 \text{SIZE} + \text{Fixed Effects} + \varepsilon_{it}$$

Where, PERFORMANCE refers to ROA or ROE of firm in year t, LIQUIDITY refers to quick ratio, LEVERAGE refers to debt equity ratio, and SIZE refers to the natural logarithm of sales revenue. Country and year fixed effects are included in the model. ε_{it} denotes the error term.

Table 9: Results of the Effects of QR and D/E on ROA and ROE, as per OLS Regression (MENA, GCC, and Non-GCC)

	MENA	MENA	GCC	Non-GCC	GCC	Non-GCC
	Year and Country Dummy	Year and Country Dummy	Year and Country Dummy	Year and Country Dummy	Year and Country Dummy	Year and Country Dummy
	Return on Asset	Return on Equity	Return on Asset	Return on Asset	Return on Equity	Return on Equity
Quick Ratio	.006*** (.001)	.005*** (.002)	.007*** (.002)	.006*** (.001)	.011*** (.004)	.002 (.002)
Debt Equity Ratio	-.042*** (.009)	-.077*** (.025)	-.032** (.016)	-.046*** (.009)	-.076* (.041)	-.056* (.029)
Size: Sales Revenue	.025*** (.003)	.033*** (.005)	.034*** (.005)	.019*** (.003)	.053*** (.009)	.02*** (.005)
_cons	-.383*** (.056)	-.482*** (.087)	-.522*** (.098)	-.283*** (.06)	-.827*** (.164)	-.231** (.094)
Observations	677	677	326	351	326	351
R-squared	.28	.269	.425	.195	.402	.205
Adj R ²	.253	.242	.392	.152	.367	.162

Robust standard errors are in parentheses.

***p<.01, **p<.05, *p<.1

The results in Table 9 show that the coefficient of quick ratio (QR) in the MENA region is positive and statistically significant at 1% significance level with respect to ROA and ROE. The quick ratio has a coefficient of 0.006 and 0.005, with year and country as dummy variables, with relation to ROA and ROE, respectively. This indicates that a unit increase in QR by the firms, with all other things being equal, will increase the firms' ROA by 0.006 units and ROE by 0.005 units. The coefficient of debt equity ratio is negative and statistically significant at 1% significance level, with respect to ROA and ROE. The debt equity ratio has a negative coefficient of -0.042 and -0.077, with country and year as dummy variables, with relation to ROA and ROE, respectively. This indicates that an additional unit in D/E by the firms, with all other things being equal, will decrease the firms' ROA by 0.042 units and ROE by 0.077 units. It is evident from the results that even if liquidity is replaced by quick ratio instead of current ratio in the model, the hypotheses are accepted. This shows that the current ratio and quick ratio are highly correlated. Thus, liquidity (QR) has a significant and positive impact on the performance (ROA and ROE). Leverage (D/E) has a significant and negative impact on the performance (ROA and ROE) in the MENA region. However, in the GCC region, the coefficient of quick ratio (QR) is positive and statistically significant at 1% significance level with respect to ROA and ROE. The quick ratio has a coefficient of 0.007 and 0.011, with year and country as dummy variables, with relation to ROA and ROE, respectively. This indicates that a unit increase in QR by the firms, with all other things being equal, will increase the firms' ROA by 0.007 units and ROE by

0.011 units. The coefficient of debt equity ratio is negative and statistically significant at 5% and 10% significance level with respect to ROA and ROE. The debt equity ratio has a negative coefficient of -0.032 and -0.076, with country and year as dummy variables, with relation to ROA and ROE, respectively. This indicates that an additional unit in D/E by the firms, with all other things being equal, will decrease the firms' ROA by 0.032 units and ROE by 0.076 units. *Although the debt equity ratio has a negative relationship with ROA and ROE, the D/E significance level is weak with ROE in the GCC region.*

In the non-GCC region, the coefficient of quick ratio (QR) is positive with respect to ROA and ROE, but statistically significant at 1% significance level with ROA and not significant with ROE. The quick ratio has a coefficient of 0.006 and 0.002, with year and country as dummy variables, with relation to ROA and ROE, respectively. This indicates that a unit increase in QR by the firms, with all other things being equal, will increase the firms' ROA by 0.006 units and ROE by 0.002 units. The coefficient of debt equity ratio is negative and statistically significant at 1% and 10% significance level with respect to ROA and ROE. The debt equity ratio has a negative coefficient of -0.046 and -0.056, with country and year as dummy variables, with relation to ROA and ROE, respectively. This indicates that an additional unit in D/E by the firms, with all other things being equal, will decrease the firms' ROA by 0.046 units and ROE by 0.056 units. *Although the debt equity ratio has a negative relationship and the quick ratio has a positive relationship with ROA and ROE, the QR and D/E significance level is weak with ROE in the non-GCC region.*

Table 10: Results of the Fixed Effects of QR and D/E on ROA and ROE, as per Panel Data Regression (MENA)

	Year Dummy	Year Dummy
	Return on Asset	Return on Equity
Quick Ratio	.005*	.005
	(.003)	(.004)
Debt Equity Ratio	-.04**	-.082*
	(.018)	(.046)
Size: Sales Revenue	.04***	.055***
	(.014)	(.021)
_cons	-.609***	-.803**
	(.215)	(.335)
Observations	677	677
R-squared	.224	.2
Adj R ²	.208	.183
Hausman test (Prob>chi2)	0.0000***	0.0000***

Robust standard errors are in parentheses.

***p<.01, **p<.05, *p<.1

Table 10 presents the results of the fixed effects model, which has achieved the objectives of the study in relation to the impact of liquidity (QR) and leverage (D/E) on the performance (ROA, ROE) of the firms in the MENA region. Based on the Hausman test statistic (0.000), only fixed effects results are interpreted. Thus, the results in Table 10 show that the coefficient of quick ratio (QR) is positive with ROA and ROE, and statistically significant at 10% significance level with ROA, and not significant with ROE. The coefficient of debt equity ratio (D/E) is negative with ROA and ROE, and statistically significant at 5% and 10% significance level with respect to ROA and ROE. The QR has a positive coefficient of 0.005 and the D/E has a negative coefficient of -0.04 and -0.082, with year as a dummy variable, with relation to ROA and ROE, respectively. This indicates that an additional unit in QR and D/E by the firms, with all other things being equal, will increase the firms' ROA and ROE by 0.005 units and decrease the firms' ROA and ROE by 0.04 and 0.082 units, respectively. Although the debt equity ratio has a negative relationship and the quick ratio has a positive relationship with ROA and ROE, the QR and D/E significance level is weak with ROE in the MENA region.

Table 11: Results of the Fixed Effects of QR and D/E on ROA and ROE, as per Panel Data Regression (GCC and Non-GCC)

	GCC	Non-GCC	GCC	Non-GCC
	Year Dummy	Year Dummy	Year Dummy	Year Dummy
	Return on Asset	Return on Asset	Return on Equity	Return on Equity
Quick Ratio	.006*	.005	.006	.004
	(.003)	(.004)	(.006)	(.005)
Debt Equity Ratio	-.028	-.028*	-.08	-.048**
	(.032)	(.014)	(.08)	(.022)
Size: Sales Revenue	.016	.048***	.035	.062***
	(.035)	(.009)	(.058)	(.015)
_cons	-.223	-.728***	-.509	-.867***
	(.579)	(.135)	(.977)	(.248)
Observations	326	351	326	351
R-squared	.303	.242	.288	.195
Adj R ²	.274	.21	.258	.161
Hausman test (Prob>chi2)	0.0000***	0.0000***	0.0000***	0.0000***

Robust standard errors are in parentheses.

***p<.01, **p<.05, *p<.1

Table 11 presents the results of the fixed effects model, which has achieved the objectives of the study in relation to the impact of liquidity (QR) and leverage (D/E) on the performance (ROA, ROE) of the firms in the GCC and non-GCC region. Based on the Hausman test statistic (0.000), only fixed effects results are interpreted. Thus, the results in Table 11 show that in the GCC region, the coefficient of quick ratio (QR) is positive with respect to ROA and ROE,

and statistically significant at 10% significance level with respect to ROA, and not significant with ROE. The quick ratio has a coefficient of 0.006, with year as a dummy variable, with relation to ROA and ROE. This indicates that a unit increase in QR by the firms, with all other things being equal, will increase the firms' ROA and ROE by 0.006 units. The coefficient of debt equity ratio is negative and statistically not significant with respect to ROA and ROE.

The debt equity ratio has a negative coefficient of -0.028 and -0.08 , with year as a dummy variable, with relation to ROA and ROE, respectively. This indicates that an additional unit in D/E by the firms, with all other things being equal, will decrease the firms' ROA by 0.028 units and ROE by 0.08 units. Although the debt equity ratio has a negative relationship and the quick ratio has a positive relationship with ROA and ROE, the D/E significance level is weak with ROA, and the QR and D/E significance level is weak with ROE in the GCC region.

In the non-GCC region, the coefficient of quick ratio (QR) is positive with respect to ROA and ROE, but statistically not significant with ROA and ROE. The quick ratio has a coefficient of 0.005 and 0.004, with year as a dummy variable, with relation to ROA and ROE, respectively. This indicates that a unit increase in QR by the firms, with all other things being equal, will increase the firms' ROA by 0.005 units and ROE by 0.004 units. The coefficient of debt equity ratio is negative and statistically significant at 10% and 5% significance level with respect to ROA and ROE. The debt equity ratio has a negative coefficient of -0.028 and -0.048 , with year as a dummy variable, with relation to ROA and ROE, respectively. This indicates that an additional unit in D/E by the firms, with all other things being equal, will decrease the firms' ROA by 0.028 units and ROE by 0.048 units. Although the debt equity ratio has a negative relationship and the quick ratio has a positive relationship with ROA and ROE, the QR significance level is weak with ROE, and the QR and D/E significance level is weak with ROA, in the non-GCC region.

Thus, the main research model, with current ratio (CR) as liquidity, has significant results compared to the revised research model.

CONCLUSION AND RECOMMENDATIONS

This research paper aimed at highlighting the relevance of liquidity management on the profitability performance, specifically in the services industry of the MENA region, as well as the focus on policies about debt and leverage of the firms. All of the hypotheses of this research were accepted. It was concluded that there is a positive relationship between a firm's liquidity and profitability. Hence, a firm meeting its day-to-day cash operations appropriately can get high returns on assets and return on equity. Contrary to this, the firms with high debt and leverage are risk-prone and unable to generate high profit, and hence, a manager should focus on internal financing and not rely too much on debt financing (supports pecking order theory). This study can help develop organisation policies with a focus on ideal liquidity management approach. Additionally, the higher management

of the firms can take wise decisions with clarity to enhance the financial health of a company. Considering MENA as the booming attraction for the hospitality industry, this study can be useful to potential investors. It is recommended that future research can identify the contributing factors and causes for the derived results, and further comparative studies in MENA and different locations can be encouraged.

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