

# INDICATORS INFLUENCING PERFORMANCE AND STABILITY IN GCC BANKING SECTOR

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## Abstract

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The main objective of this study is to identify the factors that can impact on the profitability and stability of GCC banks, using data from the period 2005-2014, to achieve GCC Vision 2030. The profitability indicators are: return on assets (ROA), return on equity (ROE), and net interest margin (NIM). In terms of stability, this can be presented through z-score and capital ratio. The statistical regressions in this study are generalised least squares (GLS) and generalised method of moments (GMM). Using both statistical indicators (GLS and GMM) is highly limited in previous studies. The main results for profitability show that stable banks are typically more profitable than unstable banks. Moreover, there is a significant and positive correlation between capital ratio and profits - larger banks obtained higher returns. To achieve GCC Vision 2030, GCC banks may benefit from concentrating on lending services. Furthermore, attracting foreign direct investments can enhance banks' profits. In contrast, outflow remittances badly affect ROA and ROE. As for the findings of stability, z-score and capital ratio impacted each other significantly and positively. Additionally, larger banks were found to be more risky when compared to smaller banks, and lending services support stability with lower insolvency risks. Finally, ROA significantly and strongly affects both stability indicators (z-score and capital ratio). Using the foreign direct investment (FDI) as an independent variable is a contribution to the performance and stability studies in banking. The result indicates that more FDI leads to better profitability in banking sector. In addition, examining the effects of outflow remittances on performance and stability adds to the knowledge. The outflow remittances decreased ROA and ROE but improve NIM significantly. In general, Islamic banks could achieve more profits (with higher insolvency risks) than conventional banks, and are found to be well-capitalised compared to conventional banks.

**Keywords:** Islamic Banks, Conventional Banks, Gulf Corporation Council, Vision 2030, Profitability, Stability

## 1. INTRODUCTION

The Gulf Cooperation Council (GCC) economies are reliant on oil and gas exports. Higher oil prices lead to greater economic growth and government spending (expansion policy). Recently, lower oil prices have threatened the economies of GCC countries. One of the main reasons behind the drop

in oil prices is that there is not enough demand to cover the huge amount of supply (International Monetary Fund, 2017). As a result, on the 26<sup>th</sup> April 2016, the Crown Prince of the Kingdom of Saudi Arabia, Mohammed bin Salman, announced KSA Vision 2030. The main goals of the Vision are to reduce the dependency on oil and to concentrate on diversifying the economy, such as developing

national industry, services, health, education, tourism and infrastructure (KSA Vision 2030, 2017). Since this step from the Saudi government was taken, the other GCC countries have supported KSA Vision 2030 through creating national economic development plans for each GCC country (Bahrain, Kuwait, Oman, Qatar and United Arab Emirates [UAE]). Economic reform for the GCC countries can be achieved through focusing on improving the banking sector. This paper aims to investigate the indicators that can boost the financial performance and stability of the GCC to achieve GCC Vision 2030. Since the 2007 global financial crisis (GFC), banks' concerns have focused on the determinants of profitability and stability. Some studies suggest that higher profits lead to fewer insolvency risks (Chiaramonte *et al.*, 2015). In addition, many studies confirm that more financial stability leads to better financial performance (Mollah and Zaman, 2015). Analysing banks' performance and stability is significant in supporting managers, depositors, creditors, policy makers, bank regulators and academics. Concentrating on the GCC region makes this study interesting for many reasons. First, GCC economies are still considered to be emerging, and there are plenty of gaps for development. Second, GCC countries play important roles in controlling the global economy due to the huge exportation of oil and gas. Third, there are large numbers of financial institutions in the GCC area, especially conventional and Islamic banks. Fourth, foreign direct investment has increased sharply over the last decade, making the GCC region very important for new investors in the banking sector. Finally, challenges have been on the increase recently due to lower oil prices and certain political problems in the Middle Eastern and North African (MENA) region, such as the Arab Spring that occurred in 2011. Therefore, it is better for GCC countries to be ready for any challenges that threaten their economies by being aware of the determinants of performance and stability in the banking sector.

The main objective of this study is to identify the factors that can improve banks' financial performance and financial stability in GCC countries to achieve the future economic growth plans (GCC Vision 2030). The period of the data covers 2005-2014, which includes crucial issues such as the global financial crisis and the Arab Spring. Bank profitability can be represented by return on assets (ROA), return on equity (ROE), and net interest margin (NIM). Regarding bank stability, z-score and capital ratio are the main indicators used in this study. The relationship between the dependent and independent variables can be tested through generalised least squares (GLS), and for robustness, the generalised method of moments (GMM) approach can be tested.

There are several contributions in this study.

- The study contributes by focusing on how to achieve GCC Vision 2030 in terms of economic growth through the banking sector.
- Based on the researcher's knowledge, this study is the first to investigate whether foreign direct investment (FDI) affects profitability and stability in the banking sector in GCC countries.

- The study considers outflow remittance as a hypothesis that can impact the performance and stability of GCC banks, which can be a contribution to the existing knowledge.
- Finally, there is a paucity of studies testing the effects of the country governance factors (voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law and control of corruption) on the profitability and stability of banks. However, this study tests the influence of two country governance factors - voice and accountability, and political stability and absence of violence/terrorism - on the profitability and stability of GCC banks.

The following section of this study, Section 2, includes the literature review that explains the recent studies on determinants of profitability and stability in banking sector. Section 3 consists of the data description and methods. This section includes also a brief on dependent and independent variables. Moreover, the regressions (model) are explained in this section. Section 4 indicates the results of GLS and GMM and discussion about the significant variables. Finally, Section 5 concludes the results of this study, providing limitations of the study and the further research that can be conducted in the future.

## 2. LITERATURE REVIEW AND HYPOTHESES FORMULATION

### 2.1. Literature review of profitability

Few existing studies examine the determinants of profitability for Islamic and conventional banks. The most recent studies were conducted by Olson and Zoubi (2017), Ghosh (2016) and Khasawnah (2016). Olson and Zoubi (2017) used ROA, ROE, and NIM as profitability ratios for the MENA region for the period 1996-2014. The results of this study revealed that larger banks were found to be more profitable than smaller banks. In addition, listed banks performed better financially than unlisted banks. Finally, during the period of the global financial crisis, it was possible for banks to be resistant to bankruptcy. Ghosh (2016) also examined the factors that form the profitability indicators (ROA and NIM) for the period 2000-2012 for Islamic and conventional banks in the MENA area. Capitalisation significantly and positively impacted on earnings. In addition, over the period of the Arab Spring, banks had low ROA due to a significant negative correlation between ROA and the Arab Spring. However, the NIM measures significantly increased over the Arab Spring period. According to Khasawnah (2016), ROA and NIM also represent the financial performance indicators for Islamic and conventional banks in MENA countries for the period 2006-2013. The finding proposed that smaller-sized banks achieved better returns. Additionally, lending services significantly and positively supported profitability. Finally, during the period of the global financial crisis, banks could achieve high NIM scores compared to lower ROA ratios.

Newer studies consider the performance of Islamic banks, such as Trad *et al.* (2017), Platonova

et al. (2016), and Zarrouk et al. (2016). Trad et al. (2017) used GMM to examine the impact of internal and external variables on the profitability of Islamic banks in the MENA region during the period 2004-2013. The study concluded that more total assets led to better return on assets, but reduced return on equity. Moreover, the association between profitability ratio and capital ratio was positive and significant. According to Platonova et al.'s (2016) study on GCC Islamic banks, size of banks, capitalisation, and lending services significantly increased the banks' profits over the period 2000-2004. Zarrouk et al. (2016) identified the banks' specific and macroeconomic variables for Islamic banks in MENA countries over the period 1994-2012. The main results of this study show that the significant and positive indicators of profitability are loan intensity and capital ratio internally, and market capitalisation externally.

Many previous studies discuss the profitability of conventional banks. For instance, Vallascas et al. (2017) used a sample of listed and large commercial banks around the world from 2004-2014. Vallascas et al. (2017) argue that due to increasing profits, banks could reduce their assets and loans. Ahamed (2017) also focused on the factors of conventional banks' earnings (ROA) in India over the period 1998-2014. The positive and significant determinants of this study were shown to be size of banks, capitalisation, and loans.

## 2.2. Literature review of stability

A greater number of studies on stability in the banking sector have been conducted since the financial global crisis of 2007. The results of the more recent studies on stability provide advice to banks that can help to resist against any future distress. Focusing on the MENA area, Mokni et al. (2016) verified that listed Islamic and conventional banks were more stable compared to unlisted banks. Furthermore, more capital led to increased insolvency risk over the period 2002-2009. Lassoued et al. (2016) also considered MENA countries in their studies, including z-score and capital ratio as financial stability representatives for Islamic and conventional banks. The sample covers the period 2006-2012 for 13 MENA countries. The main findings suppose that state ownership significantly supports financial stability. On the other hand, foreign ownership raised the likelihood of bankruptcy. These results allow governments to invest more in the banking sector, but discourage international banks from opening more branches in MENA countries. Concentrating on Islamic banks only, Trad et al. (2017) examined the determinants of financial stability in 12 countries during the period 2004-2013. The outcome of this study shows that Islamic banks could strengthen their stability through raising equities, due to a significant and positive correlation between z-score and equity ratio.

Recently, an extensive number of studies have concentrated on the factor of financial stability for conventional banks. For example, Leroy and Lucotte (2017) tested the indicators that affect stability in Europe through the period 2004-2013. The empirical

results of this study strongly suggest reducing banks' assets and loans due to higher costs. Wu et al. (2017) also focused on banks in Europe over the period 2000-2014, finding a negative and significant correlation between z-score and capital ratio. This finding encourages European banks to increase equities. Overall, over the period of the global financial crisis, the stability of banks has been affected badly. Chen et al. (2017), in their study of 29 countries over the period 2000-2012, concluded that banks should consider total assets and capitalisation to support their stability. The statistical results stopped foreign and public investment in the banking sector due to negative and significant associations between stability and both foreign and state ownership.

From the review of the literature of profitability and stability in the banking sector, there is a dearth of studies focusing on the impact of foreign direct investment, outflow remittance, and country governance factors (voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption) on profitability and stability in the GCC region. As a result, this study fills these gaps and further research can be extended based on these hypotheses.

## 2.3. Hypotheses formulation

Both internal and external factors are examined in this study, both of which can affect the profitability and stability of Islamic and conventional banks in GCC countries. The formulation of hypotheses can be considered based on the significant variables from the literature review.

### 2.3.1. Internal factors

The internal factors (bank-specific variables) in this study are z-score, capital ratio, and size of bank, loan intensity, age of bank, ROA, foreign ownership, domestic ownership, public ownership, Islamic dummy, and listing in the stock market.

*Z-score:* Regarding the literature of determinants of profitability, the majority of recent studies confirm that higher financial stability and fewer insolvency risks led to profits, as banking clients prefer to deal with stable banks (see Mamatzakis *et al.*, 2016; Mollah and Zaman, 2015). This result in obtaining more deposits from clients, and higher deposits subsequently enable a variety of banking enterprises. Referring to stability, Horvath et al. (2014) argue that the relationship between capitalisation and z-score was significant and negative for commercial Czech banks for the period 2000-2010. Based on this, the first hypothesis can be formulated:

*H1: Z-score impacts the profitability and stability of GCC banks significantly.*

*Capital ratio:* Focusing on the literature of profitability, comprehensive studies have investigated the impact of capitalisation on profitability. Most studies approved that capitalisation significantly and positively supports profitability, such as Ahamed (2017), Maudos (2017) and Trad et al. (2017). In contrast, few studies

confirm the opposite result as capital affects profits inversely (Chronopoulos *et al.*, 2015; Rumler and Waschiczek, 2014). In terms of studies on stability, a large number of studies also highlight that capitalisation is highly important for greater stability and lower risks. Some examples include Ahamed and Mallick (2017), Chen *et al.* (2017), and Wu *et al.* (2017). However, Chiaramonte *et al.* (2016) and Tabak *et al.* (2013) note that lower capitalised banks acted safer financially than larger capitalised banks. Thus, the second hypothesis is:

*H2: Capital ratio impacts the profitability and stability of GCC banks significantly.*

*Size:* Most studies claim that larger banks could be more profitable, stable, and competitive. Further, more services could be provided by banks with more branches. For profitability, the studies of Biswas and Zhai (2017), Brighi and Venturelli (2016), and Maudos (2017) all report a positive relationship between profitability and size of banks. By contrast the results of Vallascas *et al.* (2017) and Tan (2016) note that smaller-sized banks have higher profits. From a stability perspective, the analysis of Chen *et al.* (2017) and Ghosh (2017) prove that more total assets allowed more stability, although this result contrasts with the studies of Leroy and Lucotte (2017) and Vallascas *et al.* (2017). The third hypothesis, however, can be tested:

*H3: Size impacts the profitability and stability of GCC banks significantly.*

*Loan intensity:* Providing more loans can support profits and stability due to lending interests. This assumption corresponds with Ahamed (2017) for profitability, and Kohler (2015) for stability. On the other hand, Chronopoulos *et al.* (2015) found that reducing loans led to better returns. By looking at the literature of stability, Kasman and Kasman (2015) sum up that loans significantly and negatively reduce stability, and made Turkish commercial banks more risky over the period 2002-2012. This study will examine the effects of loan intensity on profitability and stability through the fourth hypothesis:

*H4: Loan intensity impacts the profitability and stability of GCC banks significantly.*

*Age:* This variable shows whether older or newer banks can achieve better profits and stability. Many recent studies approve that older banks were more profitable and more stable, such as Nunes and Serrasqueiro (2015) for profitability and Schaeck and Cihak (2014) for stability. There are few studies claiming that new banks could achieve more profits with low risks; for example, Beck *et al.* (2005) concluded that new Nigerian commercial banks had higher earnings compared to older banks during the period 1990-2001. However, this fifth hypothesis can be formed as:

*H5: Age impacts the profitability and stability of GCC banks significantly.*

*ROA:* In most previous studies, profitability supported financial stability positively (e.g. Anginer *et al.*, 2014; Baselga-Pascual *et al.*, 2015; Chiaramonte *et al.*, 2016). Based on this, profits allow diversification and reducing of risks. Rarely, cases in the literature indicated that higher profitable banks were found to be unstable compared to lower profitable banks (Lassoued *et al.*, 2016). The hypothesis for ROA is:

*H6: ROA impacts the profitability of GCC banks significantly.*

*Foreign ownership:* This factor encourages or discourages international banks from increasing or decreasing their investments in the banking industry. Some studies indicate that foreign ownership is significant and positive for profits (see Luo *et al.*, 2015), while other studies give the opposite result (e.g. Dedu and Chitan, 2013). Focusing on stability, foreign ownership levels could either support stability (Mirzaei *et al.*, 2013) or raise risks (Kasman and Kasman, 2015). The hypothesis for foreign ownership is:

*H7: Foreign ownership impacts the profitability and stability of GCC banks significantly.*

*Domestic ownership:* Hussain's (2014) study of commercial Pakistani banks reports that local banks had lower NIM compared to foreign banks during the period 2001-2010. There is an insignificant correlation between local ownership and NIM. The eighth hypothesis is:

*H8: Domestic ownership impacts the profitability and stability of GCC banks significantly.*

*State ownership:* Recently, the government tried to diversify its investments to reduce risks. When the association is positive between state ownership and both indicators (profitability and stability), then governments are encouraged to finance banks. This complies with Rumler and Waschiczek (2014) for both indicators. Cases proposing the opposite, such as Barakat and Hussainey (2013) and Lee and Kim (2013), posit that public ownership affects profitability and stability badly. This paper tests state ownership through the following hypothesis:

*H9: State ownership impacts the profitability and stability of GCC banks significantly.*

*Islamic banks:* This variable can be explained in dummy, and it compares Islamic and conventional banks for the indicators of profitability and stability. Ghosh (2016) used Islamic banks as dummy, and the results indicate that Islamic banks achieve better earnings than conventional banks. This contrasts with Olson and Zoubi (2011), who found that conventional banks exceeded Islamic banks in terms of profits in the MENA region for the period 2000-2008. Concentrating on stability, Ghosh (2017) claims that Islamic banks were found to be less risky compared to conventional banks over the period 2001-2012 in the MENA region. Thus, the following hypothesis is presented:

*H10: Islamic banks impact the profitability and stability of GCC banks significantly.*

*Listing:* In a study of profitability, Saghi-Zedek and Tarazi (2015) demonstrated that being listed in the stock market in Europe impacted profits positively and significantly, while Olson and Zoubi (2017) found that listing reduced earnings significantly. In terms of stability, Wang *et al.* (2015) confirmed that Chinese listed banks were significantly more stable compared to unlisted banks for the period 2002-2010. Conversely, Saghi-Zedek and Tarazi (2015) assumed that unlisted banks could be steadier against risks. The listing dummy hypothesis can be presented as:

*H11: Listing impacts the profitability and stability of GCC banks significantly.*

### 2.3.2. External factors

The external factors in this study are foreign direct investment (FDI), outflow remittances, accountability, political stability, market capitalisation, global financial crisis (GFC), and Arab Spring.

*Foreign direct investment:* After the price of oil lowered, GCC countries tried to attract international organisations to invest through deregulations in entering markets. FDI can enhance capital and diversify risks. This study analyses the influence of FDI on the banking sector through the following hypothesis:

*H12: FDI impacts the profitability and stability of GCC banks significantly.*

*Outflow remittances:* Sending huge amounts of money reduces cash flow in any country. This could significantly and adversely affect the economy as whole. Recently, GCC countries strive from outflow remittance which forced central banks from GCC countries to increase commissions of external transfers (Saudi Arabian Monetary Authority, 2017). The hypothesis of outflow remittances is:

*H13: Remittances impact the profitability and stability of GCC banks significantly.*

*Accountability:* Recently, GCC governments have focused on obligating organisations to announce their activities and financial statements to enhance transparency. This study tests the effects of accountability on the performance and stability of GCC banks:

*H14: Accountability impacts the profitability and stability of GCC banks significantly.*

*Political stability:* All countries strive to keep higher standards of political stability to enhance economies, human rights, society, and competition. Barakat and Hussainey (2013) found an insignificant correlation between financial stability and political stability in Europe during the period 2008-2010. The variable of political stability can be tested in this study as:

*H15: Political stability impacts the profitability and stability of GCC banks significantly.*

*Market capitalisation:* This factor shows the effects of financial market performance upon profitability and stability. Tan et al.'s (2017) results indicate that stock market growth supports ROA and ROE positively, but NIM relates to market capitalisation negatively and significantly. Carretta et al. (2015) state that European commercial banks in countries with higher growth of stock markets are more stable. The sixteenth hypothesis is:

*H16: Market capitalisation impacts the profitability and stability of GCC banks significantly.*

*GFC:* Several studies prove that banks increased their profits significantly over the GFC period, including Olson and Zoubi (2017). In contrast, the majority reported that GFC affected banks' profits inversely and significantly, e.g. Maudos (2017) and Brighi and Venturelli (2016). Wu et al. (2017), Anginer et al. (2014), and Williams (2014), however, claim that during the period of GFC risk-taking was significantly high. This study investigates whether the GFC influenced the profitability and stability of GCC banks under the following hypothesis:

*H17: GFC impacts the profitability and stability of GCC banks significantly.*

*Arab Spring:* In 2011, most economies in the MENA region were badly affected by the political instability in the area. This is confirmed by Ghosh (2016) for both profitability and stability. The impact of the Arab Spring, however, can be tested in this study as:

*H18: Arab Spring impacts the profitability and stability of GCC banks significantly.*

## 3. METHODOLOGY

### 3.1. Data description

The sample for this study was collected from Orbis Bank Focus and World Bank. The panel data covers the period of 2005-2014 for GCC countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates) comprising Islamic and conventional banks. According to the Gulf Cooperation Council (2017), the GCC is a political and economic union that located in the Middle East. This union was formed in 1981 that headquartered in Riyadh (the capital of Saudi Arabia). There are similarities in cultures such as shared Arabic language in the region. The GCC countries have emerging economies and they highly depend on oil exports to grow their GDP. The GCC Vision recommends diversifying economy rather than depending on oil income. Many strategies can be provided to diversify economy such as improving services sectors, attracting more tourists, facilitate foreign direct investment and enhancing industrial activities. In total, the sample contains 74 banks, 19 Islamic banks, and 55 conventional banks.

#### 3.1.1. Dependent variables

Following the literature, profitability can be used through return on assets (ROA), return of equity (ROE) and net interest margin (NIM). Tan et al. (2017) employed the same three profitability indicators in their study. For stability, the primary measures of stability are z-score and capital ratio (both used by Vallascas *et al.*, 2017). Table 1 concludes the definition of dependent variables and statistics summary for GCC banks over the period 2005-2014.

#### 3.1.2. Independent variables

The internal factors in this study are z-score, capital ratio, size of bank, loan intensity, age of bank, ROA, foreign ownership, domestic ownership, public ownership, Islamic dummy, and listing in the stock market. On the other side, the external factors are foreign direct investment (FDI), outflow remittances, accountability, political stability, market capitalisation, global financial crisis (GFC) and Arab Spring. Table 1 provides the definition of independent variables and statistics summary for GCC banks over the period 2005-2014. In addition, the expectation of the relationship between dependent and independent variables is presented in Table 1.

**Table 1.** Variable definitions and summary statistics for banks in GCC countries

Variables	Definition	Statistics			Expected Sign
		Obs	Mean	S.D.	
<i>Dependent variables</i>					
ROA	Return on assets = net income / total assets	689	0.0233	0.106	-----
ROE	Return on assets = net income / Equity	689	0.111	0.141	-----
NIM	Net interest income / total earning assets	689	3.287	4.058	-----
Z-score	Log (z-score), where Z-score = (ROA + capital ratio) / S.D. (ROA)	689	2.740	1.027	-----
Capital ratio	Capital/total assets	689	0.221	0.277	-----
<i>Independent variables</i>					
<i>Bank-specific variables</i>					
Z-score	Log (z-score), where Z-score = (ROA + capital ratio) / S.D. (ROA)	689	2.740	1.027	+
Capital ratio	Capital / total assets	689	0.221	0.277	+
Size	Log (total assets)	689	8.757	1.589	+
Loan intensity	Loans / total assets	689	0.575	0.454	+
Age of bank	Log (years since establishment)	689	3.354	0.570	+
ROA	Return on assets = net income/total assets	689	0.023	0.106	+
Foreign ownership	Dummy = 1 if a bank owned by foreign, else zero	689	0.307	0.461	+
Domestic ownership	Dummy = 1 if a bank owned by local, else zero	689	0.377	0.485	-
State ownership	Dummy = 1 if a bank owned by state, else zero	689	0.314	0.464	+
Islamic banks	Dummy = 1 if a bank is Islamic bank, else zero	689	0.746	0.435	-
Listing in financial market	Dummy = 1 if a bank is listed, 0 if a banks is unlisted	689	0.226	0.418	+
<i>Country-specific variables</i>					
Foreign direct investment	Log (foreign direct investment)	689	20.682	5.581	+
Outflow remittances	Log (outflow remittances)	689	8.820	0.967	-
Accountability	%, higher percentage indicates higher accountability	689	19.211	8.075	+
Political stability	%, higher percentage indicates higher political stability	689	55.229	24.115	+
Market capitalisation	Market capitalisation to GDP	689	0.599	0.458	+
Global financial crisis	Dummy = 1 for the period 2007-2009, otherwise zero	689	0.306	0.461	-
Arab Spring	Dummy = 1 for the period 2011-2014, otherwise zero	689	0.416	0.493	-

Sources: Orbis Focus Bank (2017) and World Bank (2017)

### 3.2. Regressions of profitability and stability

Two statistical approaches are used in this study: generalised least squares (GLS), and for robustness, generalised method of moments (GMM). The reason

behind choosing GLS and GMM is to avoid the endogeneity problem arising from a causal correlation between dependent and independent variables.

The profitability model is:

$$Pro_{it} = \alpha + \beta_1 LOGZ_{it} + \beta_2 EQTA_{it} + \beta_3 LTA_{it} + \beta_4 LOANSTA_{it} + \beta_5 LAGE_t + \beta_6 FORE_i + \beta_7 DOM_i + \beta_8 GOV_i + \beta_9 ISLAMIC_i + \beta_{10} LISTING_i + \beta_{11} FDI_t + \beta_{12} OREM_t + \beta_{13} ACCOUNT_t + \beta_{14} PSTABILITY_t + \beta_{15} MCAP_t + \beta_{16} GFC_t + \beta_{17} ASPRING_t + \varepsilon_{it} \quad (1)$$

$i = 1 \dots n; t = 1 \dots n$

The stability models are:

$$Z - sco_{it} = \alpha + \beta_1 EQTA_{it} + \beta_2 LTA_{it} + \beta_3 LOANSTA_{it} + \beta_4 LAGE_t + \beta_5 ROA_{it} + \beta_6 FORE_i + \beta_7 DOM_i + \beta_8 GOV_i + \beta_9 ISLAMIC_i + \beta_{10} LISTING_i + \beta_{11} FDI_t + \beta_{12} OREM_t + \beta_{13} ACCOUNT_t + \beta_{14} PSTABILITY_t + \beta_{15} MCAP_t + \beta_{16} GFC_t + \beta_{17} ASPRING_t + \varepsilon_{it} \quad (2)$$

$i = 1 \dots n; t = 1 \dots n$

$$Cap_{it} = \alpha + \beta_1 LOGZ_{it} + \beta_2 LTA_{it} + \beta_3 LOANSTA_{it} + \beta_4 LAGE_t + \beta_5 ROA_{it} + \beta_6 FORE_i + \beta_7 DOM_i + \beta_8 GOV_i + \beta_9 ISLAMIC_i + \beta_{10} LISTING_i + \beta_{11} FDI_t + \beta_{12} OREM_t + \beta_{13} ACCOUNT_t + \beta_{14} PSTABILITY_t + \beta_{15} MCAP_t + \beta_{16} GFC_t + \beta_{17} ASPRING_t + \varepsilon_{it} \quad (3)$$

$i = 1 \dots n; t = 1 \dots n$

Where,  $Pro_{it}$  (ROA, ROE and NIM),  $Z - sco_{it}$  (the natural logarithm of z-score), and  $Cap_{it}$  (capital ratio) are the dependent variables;  $\alpha$  represents the constant;  $\beta$  is the coefficient;  $LOGZ_{it}$  denotes the natural logarithm of z-score;  $EQTA_{it}$  is the ratio of equity over total assets;  $LTA_{it}$  is the natural logarithm of total assets (proxy of size);  $LOANSTA_{it}$  is loans to total assets ratio;  $LAGE_t$  is the natural

logarithm of age (time since establishment);  $ROA_{it}$  is the proxy of net income over total assets;  $FORE_i$ ,  $DOM_i$ , and  $GOV_i$  represent foreign, domestic and public ownerships, respectively;  $ISLAMIC_i$  is a dummy variable, shown as 1 for Islamic banks and 0 for conventional;  $LISTING_i$  is a dummy variable, shown as 1 for listed banks and 0 for unlisted banks;  $FDI_t$  represents foreign direct investment;

$OREM_t$  denotes outflow remittances;  $ACCOUNT_t$  is accountability;  $PSTABILITY_t$  represents political stability;  $MCAP_t$  is the ratio of market capitalisation over GDP;  $GFC_t$  is the global financial crisis (dummy variable: 1 for the period 2007-2009 and 0 otherwise);  $ASPRING_t$  is the Arab Spring (dummy variable: 1 for the period 2011-2014 and 0 for the period 2005-2010);  $\varepsilon_{it}$  is the error term;  $i$  denotes banks; and  $t$  represents time.

Before starting the analysis section, the correlation matrix needs to be conducted to make sure that the data do not have multicollinearity. Table 2 shows that all correlation values are under 70%.

#### 4. RESULTS AND DISCUSSION

Table 3 presents the results of the significant variables affecting the profitability and stability of GCC banks for the period 2005-2014. For profitability, the significant factors are z-score, capital ratio, size, loan intensity, domestic ownership, Islamic dummy, listing, FDI, outflow remittance accountability, political stability, market capitalisation and Arab Spring. On the other side, Table 4 illustrates the significant variables affecting stability, namely z-score, capital ratio, size of bank, loan intensity, age of bank, ROA, foreign ownership, domestic ownership, Islamic dummy, listing in the stock market, accountability, political stability, market capitalisation, and Arab Spring.

**H1:** Z-score: The results of GLS and GMM in Table 3 confirm that higher stability allows more profits with lower risks, as predicted (similar to Mamatzakis *et al.*, 2016; Mollah and Zaman, 2015). According to the findings of stability in Table 4, there is a mutual, robust and positive correlation between z-score and capital ratio (this is consistent to Horv ath *et al.*, 2014). This means that banks in the GCC can achieve the economic reform of Vision 2030 through focusing on growing their profits and capitals.

**H2:** Capital ratio: Table 3 shows that capitalisation has a positive coefficient for ROA and is strongly significant at 0.1%. This outcome is in accordance with observations of Ahamed (2017), Maudos (2017) and Trad *et al.* (2017). The GLS estimates that well-capitalised banks are more stable and less risky. This finding is similar to Ahamed and Mallick (2017), Chen *et al.* (2017) and Wu *et al.* (2017). The results of the GLS and GMM provided in Table 3 and Table 4 strongly suggest that banks' goals can conform to Vision 2030 through maximising capital. This can be realised through higher investment in the banking industry, involving the development of economies of the GCC such as financing projects.

**H3:** Size: Based on the results in Table 3, it can be observed that larger banks in GCC countries are more profitable compared to smaller banks, as expected. This finding supports the conclusions of Biswas and Zhai (2017), Brighi and Venturelli (2016) and Maudos (2017). At the same time, higher total assets allow more insolvency risks (similar to Leroy and Lucotte, 2017; Vallascas *et al.*, 2017). This refers to the negative and significant association between stability indicators (z-score and capital ratio) and size of banks in Table 4. From this result, banks have to be careful in terms of investing their assets, equity, and profits.

**H4:** Loan intensity: The empirical results in Table 3 and Table 4 show that concentrating on lending services significantly and positively supports ROA (like Ahamed, 2017) and capitals (similar to Kohler, 2015). These findings mean that the demand on credit was relatively high. Overall, banks can increase their loans to enhance their profits and stability, but must consider many related factors such as interest rates, clients' deposits, financial crisis, inflation, and recession.

**H5:** Age of bank: The regressions of GLS and GMM show that older banks can achieve higher return on equities than new banks. Older banks have more experience in terms of investing capital with lower risks compared to new banks (Dietrich and Wanzenried, 2011). In this case, investors in the banking sector can distribute their funds between older and new banks in GCC countries to achieve an integrated economy, which can support GCC Vision 2030.

**H6:** ROA: The outcome of the GLS model in Table 4 strongly indicates that return of assets affects financial stability positively. Chiaramonte *et al.* (2016), Baselga-Pascual *et al.* (2015) and Anginer *et al.* (2014) conclude the same outcome. Generally, more profitable banks can provide more services of higher quality compared to banks with low profits. In addition, higher profits lead banks to diversify their risks through investing in a variety of enterprises. Moreover, clients prefer to deal with profitable banks. This result encourages banks to maximise their profits, and then realise Vision 2030 in GCC countries.

**H7:** Foreign ownership: Table 4 illustrates that international ownership significantly and negatively impacted the stability of banks in GCC countries during the period 2005-2014 (related to Kasman and Kasman, 2015). This result discourages international investors from financing banks in GCC countries. In this case, governments can increase deregulations to attract more investment from international investors in the banking industry.

**H8:** Domestic ownership: The signs of coefficients in Table 3 depict that banks were profitable in GCC countries throughout the period 2005-2014. However, Table 4 shows that the risk of bankruptcy is relatively high. Based on this, local owners have to be aware of this when reinvesting the returns of banks in GCC countries to avoid failure.

**H10:** Islamic dummy: For profitability, the findings of Islamic dummy in Table 1 show that Islamic banks are more profitable than conventional banks (see Ghosh, 2016). In terms of stability, conventional banks are more stable and less risky compared to Islamic banks. In addition, Islamic banks were found to be well-capitalised during the period 2004-2014.

**H11:** Listing: Table 3 indicates that listed banks achieve greater ROE than unlisted banks. This is linked to the study by Saghi-Zedek and Tarazi (2015). Moreover, unlisted banks have better NIM ratios than listed banks. Table 4, however, notes that the unlisted banks were found to be better capitalised compared to the listed banks in the GCC region for the period 2005-2014.

Table 2. Correlation matrix for variables

<i>Correlation Matrix</i>	<i>ROA</i>	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>	<i>(5)</i>	<i>(6)</i>	<i>(7)</i>	<i>(8)</i>	<i>(9)</i>	<i>(10)</i>	<i>(11)</i>	<i>(12)</i>	<i>(13)</i>	<i>(14)</i>	<i>(15)</i>	<i>(16)</i>	<i>(17)</i>	<i>(18)</i>
(1) ROE	0.35																		
(2) NIM	0.16	0.21																	
(3) Z-score	0.05	0.30	0.10																
(4) Capital ratio	0.27	-0.15	0.13	-0.05															
(5) size	0.02	0.31	-0.06	0.11	-0.38														
(6) Loan intensity	0.25	0.15	0.02	0.13	0.36	0.23													
(7) Age	0.03	0.26	-0.10	0.06	-0.12	0.36	0.23												
(8) Foreign ownership	-0.01	-0.12	-0.09	-0.22	0.07	-0.18	-0.20	-0.08											
(9) Domestic ownership	-0.03	0.06	0.06	0.05	-0.15	-0.02	-0.05	-0.03	-0.52										
(10) State ownership	0.04	0.06	0.03	0.16	0.09	0.21	0.25	0.12	-0.45	-0.53									
(11) Islamic bank	0.01	-0.19	0.15	-0.22	0.16	-0.21	-0.13	-0.45	-0.01	0.12	-0.12								
(12) Listing	0.02	0.26	-0.09	0.04	-0.20	0.38	0.17	0.48	-0.10	0.01	0.08	-0.11							
(13) Foreign direct investment	0.04	0.06	0.02	0.01	0.03	0.05	0.03	0.08	-0.05	-0.06	0.11	0.02	0.03						
(14) Outflow remittances	0.03	0.21	0.02	0.16	-0.14	0.57	0.32	0.31	-0.21	-0.03	0.24	-0.12	0.42	0.11					
(15) Accountability	-0.08	-0.07	0.05	0.02	-0.04	-0.18	-0.14	0.00	-0.10	0.14	-0.05	0.01	-0.08	-0.22	-0.33				
(16) Political stability	-0.01	0.17	0.08	0.26	-0.10	0.13	0.11	0.09	-0.22	0.01	0.21	-0.06	0.16	-0.11	0.30	0.56			
(16) Market capitalisation	0.01	0.17	-0.14	0.04	-0.02	0.07	0.05	0.23	0.11	-0.02	-0.09	-0.52	-0.02	-0.02	-0.15	-0.07	-0.27		
(17) Global financial crisis	-0.05	-0.03	0.02	-0.04	0.00	-0.06	-0.01	-0.02	0.03	0.02	-0.05	0.01	-0.02	-0.07	-0.10	0.17	0.10	0.01	
(18) Arab Spring	0.04	-0.09	-0.05	0.00	0.00	0.16	0.00	-0.05	-0.03	-0.04	0.07	0.03	0.00	-0.05	0.28	-0.29	-0.15	-0.21	-0.56



Table 3. GLS and GMM results for profitability of banks in GCC countries

<i>GLS and GMM results</i>	<i>(GLS)</i>	<i>(GMM)</i>	<i>(GLS)</i>	<i>(GMM)</i>	<i>(GLS)</i>	<i>(GMM)</i>
<i>Profitability</i>	<i>ROA</i>	<i>ROA</i>	<i>ROE</i>	<i>ROE</i>	<i>NIM</i>	<i>NIM</i>
(H1) Z-score	0.0199** (3.24)	0.00409 (0.88)	0.0382*** (6.22)	0.0305*** (3.42)	0.594* (2.33)	0.434*** (3.91)
(H2) Capital ratio	0.123*** (5.85)	0.101*** (3.58)	-0.0161 (-0.67)	-0.0174 (-0.89)	1.091 (1.33)	2.083 (1.19)
(H3) Size	0.00950* (2.07)	0.00761* (2.20)	0.0197*** (4.01)	0.0175** (2.87)	0.230 (1.24)	0.0677 (0.57)
(H4) Loan intensity	0.0197 (1.42)	0.0324*** (3.73)	0.00399 (0.26)	0.0113 (1.11)	-0.499 (-0.91)	-0.403 (-0.72)
(H5) Age	0.00496 (0.35)	0.00177 (0.46)	0.0310* (2.25)	0.0277** (2.88)	-0.0338 (-0.06)	-0.145 (-0.50)
(H7) Foreign ownership	0.0127 (0.82)	0.0106 (1.96)	0.00559 (0.35)	0.00788 (0.95)	-0.301 (-0.47)	-0.363 (-1.28)
(H8) Domestic ownership	0.0110 (0.78)	0.0108* (2.30)	0.0227 (1.56)	0.0262** (3.15)	0.157 (0.28)	0.261 (1.16)
(H9) State ownership						
(H10) Islamic banks	0.00926 (0.48)	0.000529 (0.06)	0.0235 (1.24)	0.0175 (1.15)	1.338 (1.66)	0.913* (2.54)
(H11) Listing	0.0101 (0.58)	0.00806 (0.76)	0.0394* (2.34)	0.0371* (2.32)	-0.998 (-1.34)	-0.854* (-2.06)
(H12) FDI	0.000387 (0.55)	0.000494* (2.19)	0.000561 (0.63)	0.000562 (1.03)	0.0119 (0.45)	0.0000278 (0.00)
(H13) Outflow remittances	-0.0148 (-1.57)	-0.0114*** (-3.93)	-0.0285** (-2.90)	-0.0201** (-2.81)	0.0992 (0.26)	0.428** (3.03)
(H14) Accountability	-0.00102 (-0.99)	-0.000960** (-2.78)	-0.00446*** (-4.01)	-0.00419*** (-5.71)	0.0379 (0.92)	0.0198 (1.37)
(H15) Political stability	0.000103 (0.27)	0.000229 (1.82)	0.00165*** (4.15)	0.00160*** (6.74)	0.00477 (0.31)	-0.00277 (-0.47)
(H16) Market capitalisation	-0.000952 (-0.08)	-0.00286 (-0.38)	0.0516*** (3.47)	0.0492*** (4.68)	-0.610 (-1.26)	-0.869* (-2.32)
(H17) Global financial crisis	-0.00445 (-0.45)	-0.00613 (-0.85)	-0.0217 (-1.76)	-0.0232 (-1.45)	-0.286 (-0.77)	-0.315 (-0.63)
(H18) Arab Spring	0.00456 (0.41)	0.00498 (0.64)	-0.0279* (-2.06)	-0.0314* (-2.24)	-0.669 (-1.54)	-0.993* (-2.25)
_cons	-0.0502 (-0.57)	-0.0176 (-0.32)	-0.0915 (-1.02)	-0.117 (-1.55)	-1.084 (-0.30)	-0.763 (-0.67)
R <sup>2</sup>	0.1642	0.1137	0.2615	0.2650	0.1390	0.0784
Obs	689	689	689	689	689	689
Number of banks	74	74	74	74	74	74

Note: *t* statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 4. GLS and GMM results for stability of banks in GCC countries

<i>GLS and GMM results</i>	<i>(GLS)</i>	<i>(GMM)</i>	<i>(GLS)</i>	<i>(GMM)</i>
<i>Stability</i>	<i>Z-score</i>	<i>Z-score</i>	<i>Capital ratio</i>	<i>Capital ratio</i>
(H1) Z-score			0.0825*** (5.38)	-0.00372 (-0.46)
(H2) Capital ratio	0.657*** (10.77)	-0.0771 (-0.49)		
(H3) Size	-0.224*** (-14.12)	-0.000669 (-0.01)	-0.0473*** (-5.08)	-0.0803*** (-13.34)
(H4) Loan intensity	0.0640 (1.48)	0.0668 (0.68)	0.401*** (19.12)	0.271** (2.74)
(H5) Age	-0.0670 (-0.30)	-0.124 (-1.53)	0.00517 (0.12)	0.0176 (1.18)
(H6) ROA	0.941*** (9.96)	0.360 (0.65)	0.315*** (5.09)	0.429 (1.09)
(H7) Foreign ownership	-0.187** (-2.85)	-0.375*** (-3.93)	0.0456 (1.32)	-0.0148 (-0.85)
(H8) Domestic ownership	-0.132* (-2.39)	0.0286 (0.31)	-0.0104 (-0.35)	-0.0946*** (-6.56)
(H9) State ownership				
(H10) Islamic banks	-0.774** (-2.80)	-0.524*** (-5.27)	0.168** (3.10)	0.130*** (6.80)
(H11) Listing	0.463 (1.74)	-0.0747 (-0.84)	-0.109* (-2.11)	-0.0641** (-3.26)
(H12) FDI	-0.000298 (-0.17)	0.000769 (0.11)	0.000392 (0.35)	0.00124 (1.26)
(H13) Outflow remittances	0.0133 (0.34)	-0.0482 (-0.58)	-0.0109 (-0.53)	0.0137 (0.80)
(H14) Accountability	-0.0106** (-3.03)	-0.0254*** (-3.66)	0.00313 (1.54)	0.00170 (1.18)
(H15) Political stability	0.00313 (1.90)	0.0148*** (5.52)	-0.00110 (-1.32)	-0.000736 (-1.48)
(H16) Market capitalisation	0.0269 (0.79)	0.0565 (0.49)	-0.00352 (-0.16)	0.0607** (2.68)
(H17) Global financial crisis	-0.0383 (-1.61)	-0.118 (-1.26)	0.0220 (1.42)	0.0258 (1.49)
(H18) Arab Spring	0.0216 (0.64)	-0.0477 (-0.49)	0.0492* (2.50)	0.0531 (1.51)
_cons	4.566*** (5.87)	3.513*** (7.21)	0.251 (1.19)	0.563*** (7.06)
R <sup>2</sup>	0.6454	0.1670	0.5795	0.4506
Obs	689	689	689	689
Number of banks	74	74	74	74

Note: t statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**H12:** FDI: The relationship between ROA and FDI is positive and significant. This proves that foreign direct investment was important for the profits of banks in the GCC area over the period 2005-2014. Based on this, the government and policy makers can attract more foreign direct investment to achieve the goals of Vision 2030.

**H13:** Outflow remittances: International transfers badly affected ROA and ROE during the period 2005-2014 in GCC countries, based on the results of Table 3. The reason behind this can be explained by lower deposits being inserted when money was transferred abroad. This warns central banks in GCC countries to reduce outflow remittance through increasing commissions on international transfers. In contrast, banks could enhance NIM due to commissions on transfers.

**H14:** Accountability: Contrary to expectations, the correlation between profitability and accountability is significant and negative, as illustrated in Table 3. This indicates that when organisations declare their activities and financial statements, banks financially perform worse. The governments in this case could encourage organisations in GCC countries to raise awareness of the advantages of announcements.

**H15:** Political stability: Banks in politically safer GCC countries achieved significantly and positively better ROE values with higher risks due to the significant association between z-score and political stability (see Table 3). This outcome leads to interest from banks to achieve profits, although the associated risks must also be taken into consideration.

**H16:** Market capitalisation: The results in Table 3 illustrate that growth in the stock market has led to higher ROA and ROE in GCC countries but lower NIM during the period 2005-2014 (linked to Tan *et al.*, 2017). However, Table 4 shows that there is a significant and positive relationship between capital ratio and market capitalisation.

**H18:** Arab Spring: Over the period of the Arab Spring (2011-2014), banks performed worse financially, as depicted in Table 3 (consistent with Ghosh, 2016). On the other hand, over the period of the Arab Spring, banks in the GCC area increased their capitals significantly (see Table 4).

## 5. CONCLUSION

The main aim of this study was to identify the factors that affect the profitability and stability of GCC banks, using data from the period 2005-2014, in order to achieve economic reforms through GCC Vision 2030. The empirical findings summarised that stable banks were typically more profitable than unstable banks. In addition, capitalisation supported profits positively. Larger banks, however, achieved higher earnings during the period of study. Banks can also focus their lending services depending on the significant and positive correlation between ROA and loan intensity. The government can deregulate foreign investment in the banking industry, as the relationship between ROA and FDI is significant and positive. At the same time, policy makers in the banking sector should impose more regulations on outflow remittance due to a negative impact from external transfers on ROA and ROE. Regarding stability, z-score and capital ratio influenced each other significantly and positively. Moreover, larger banks were found to take more risks than smaller banks. Providing loans to clients also supports stability with low risks. ROA significantly and strongly impacted both stability indicators (z-score and capital ratio) for GCC banks over the period 2005-2014. Overall, the results of this study conclude that Islamic banks obtained more profits (with higher insolvency risks) than conventional banks. In addition, Islamic banks were found to be well-capitalised compared to conventional banks.

There are a number of limitations in this study, such as the unavailability of some data from 2015 and 2016 which forced the use of panel data until 2014. In addition, this study excluded the rest of country governance variables (government effectiveness, regulatory quality, rule of law and control of corruption) due to the existence of multicollinearity. Future studies would benefit from being extended to cover 2015 and 2016, as well as covering a larger sample from MENA countries. Finally, the impact of all country governance variables on profitability and stability could be analysed in further research. More studies also can be conducted in the future through using more dependent variables such as efficiency indicators. The data development analysis (DEA) and stochastic frontier analysis (SFA) can represent efficiency in banking sector.

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