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| RESEARCH ARTICLE

Financial Market Development and Bank Risk in GCC Countries

Yun Li
Hainan Vocational University of Science and Technology, Hainan, China
Corresponding Author: Yun Li, **E-mail**: 704823609@qq.com

| ABSTRACT
Financial market development is considered vital for innovation and economic growth. However, it may affect bank risk-taking as banks' involvement in financial markets increases market and credit risks. In this study, we examine the impact of financial market development on bank risk in the Gulf Cooperation Council (GCC) member countries. We collect data from 120 GCC banks from 2012 through 2022. We represent financial development through stock market development and banking sector development, as well as bank risk through capitalization and income diversification. Our results suggest that increased financial development increases bank risk, which is valid for both stock market and banking sector development. However, neither measure of financial development has any impact on income diversification. Our results have implications for bank managers, policymakers, regulators, and stakeholders who are interested in the financial stability of GCC countries.

| KEYWORDS
Financial development, bank risk, GCC countries, income diversification.

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1. Introduction

The development of financial markets can be a source of opportunities and risks for the financial sector. While it could support economic development by enabling businesses to allocate money more effectively and efficiently, it may also threaten the stability of banks. Easy access to financial services may increase bank risk without adequate supervision and requirements. Despite the extensive literature on bank performance and efficiency, the effect of financial development on banks' risk-taking has not been discussed adequately, particularly in the Gulf Cooperation Council (GCC) countries. It is, however, crucial to investigate the connection between bank risk and financial development for several reasons. First, developing financial markets usually results in better regulation, supervision, and availability of risk management methods. Development in regulations may limit banks from engaging in non-traditional activities, as income diversification is often linked to income volatility and bank failure (Hamid, 2019).

A country's financial stability, economic prosperity, and well-being are influenced by its banking industry (Jungo et al., 2022). It is essential to developing nations' economic growth (Levine, 1997). Banking systems have undergone substantial transformation due to deregulation, privatization, and the integration of financial markets. The significance of institutional ownership has increased, leading to changes in governance frameworks and bank risk-taking practices (Boubakri et al., 2020). There may be good reasons why banks take more risks than they should, given the actions of their shareholders and their incentives to do so. We examine the effect of financial development on bank risk-taking in the context of Gulf Cooperation Council (GCC) countries. As the GCC's economies liberalised in the 1990s, they offer a reasonable setting for a comprehensive examination of this topic, in contrast to most other nations where reforms began around the 1970s. The GCC nations mostly rely on a single principal commodity for exports and have comparable economic and social traits. Hydrocarbons represent over 70% of these countries' merchandise exports, nearly half of their GDP, and more than three-fifths of their government revenue on average (Behar, 2013).
Stock market development (SMD) and banking system development (BSD) are proxies for financial progress, whereas we capture bank risk through revenue diversification and capitalisation. Banks with higher capitalisation tend to be more stable as they have

more capital to withstand bank runs and other financial difficulties. On the other hand, income diversification is anticipated to mitigate bank risk. In many respects, our study adds to the body of knowledge already available on the influence of financial development on commercial banks' risk-taking practices. This study methodically investigates a topic that hasn't gotten much attention before: how financial development affects banks' willingness to take risks in the GCC. The findings support a strong correlation between risk-taking and financial development. The GCC banks show a change in risk-taking behaviour due to financial market development.

2. Literature review

Banking literature has long examined the relationship between macroeconomic activities and the financial system on which they are based, starting with the theories put out by Bernanke et al. (1999). According to Jokipii and Milne (2008), the pro-cyclical hypothesis contends that banks should take on greater risk during prosperous economic times, while the countercyclical hypothesis contends that banks should take on greater risk during hard times to maintain their profits. Also, the moral hazard hypothesis states that financial institutions are encouraged to take on greater risk at a lower capital base by the financial system's rapid expansion (Pernell & Jung, 2023). Many studies discuss how bank risk can be minimized by improvements and reforms in the financial sector, such as economic liberalisation measures improving the efficiency of banks. Recent studies also indicate how capital liberalisation assists in allocating savings to the most profitable uses, which aids and improves the productivity of the domestic financial system. In their research, Naceur and Candelon (2019) explain that financial market development does not impact bank performance. Masoob et al. (2021) discuss how financial liberalisation in the US has had mixed effects on bank performance and governance.

While financial development has promoted efficiency and competition within banks, it has exposed them to more significant risks, leading to financial instability during crises. The "competition-fragility" argument states that as competition increases, banks market power, profit margins, and franchise value decline, encouraging banks to take on more risk. Competition stability suggests that greater market dominance makes banks more resourceful and improves stability (Halim et al., 2023). These analyses highlight the importance of robust regulatory frameworks and effective governance structures to mitigate these risks. Restructuring efforts for these banks in a post-crisis situation have shown varying degrees of success across the country, emphasizing the need for tailored approaches considering each area's unique economic and institutional context (Khan, 2022).

Many studies highlight the detrimental consequences of financial development on the banking system. In a hypothetical case where we consider financial intermediaries engaging in riskier activities that make them vulnerable to a credit boom, a financial crisis could be triggered. So, when risk-taking by banks is high, financial development may contribute to increased instability within the financial system. In their research, Khan et al. (2021) mentioned that the danger of bank failures would rise with financial development. Ghosh (2014) presented a similar viewpoint, concluding that financial liberalisation fosters risk-taking behaviour by financial intermediaries, thereby elevating the risk in banks. Festić et al. (2011) identified the adverse impact of credit expansion on banks' asset quality (as determined by the ratio of non-performing loans to total assets). Bui and Bui (2020), Cubillas and Gonzalez (2014), and Vithenssonthi (2014) discovered a positive correlation between bank risk and financial liberalisation in transition economies.

Financial liberalisation cannot be considered a one-size-fits-all approach, as it might not always be effective in every economy due to factors unique to each nation. Moreover, the reliability of institutions and the nation's financial markets influence how financial liberalisation plays out. However, one must remember that the impact can be negative if market discipline is not maintained (Sikatan & Rokhim, 2017). As the impact of financial growth remains ambiguous, we examine the relationship between bank risk and financial development in the GCC region amidst their financial market development. There is a lack of literature regarding the subject in these countries. Compared to many East Asian and Latin American nations, where early reform initiatives date back to the 1970s and 1980s, most Arab economies began to reform their financial systems in the 1990s. Among the world's richest, the six nations mainly derive their money from oil.

Establishing competitive markets and institutions that are welcoming to investors can be aided by a robust financial intermediation system. On the other hand, economies with regulated financial systems—such as those seen in many GCC nations, where stringent credit regulations and high interest rates are still in place—tend to be undeveloped and uncompetitive, with a small number of government-owned banks controlling most of the financial industry (Budagaga, 2020). However, as the GCC countries increase their integration into the global economy, the number of potential threats and possibilities increase. Free capital mobility reduces consumption volatility to output volatility by promoting more effective capital allocation and risk diversification advantages through risk-sharing opportunities (Bley & Saad, 2011). For these reasons and conditions, and due to a lack of literature regarding the relationship between bank risk and financial development in this area of the world, we base our research here. We use revenue diversification and bank capitalisation to evaluate our findings and quantify bank risk. We hypothesise that whereas higher (lower) revenue diversification suggests high (low) risk, more significant (lower) capitalisation means low (high) risk. The ratios of stock

market capitalisation to GDP and credit to the private sector to GDP are used to gauge the growth of the financial sector, as suggested by Vithenssonthi (2014).

3. Methodology

This study's sample comprises banks from the GCC countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. We have collected financial data for 120 banks from 2012 to 2022 from the LSEG platform. Data selection is based on the realization that the concern for financial stability became more prominent in the aftermath of the Global Financial Crisis of 2008 and 2009. The macro data was sourced from the World Bank's development indicators.

To understand how financial development affects bank capital, we take the following equation:

$$BCR_{i,j,t} = \alpha + \beta_1 FD_{j,t} + \beta_2 CON_{j,t} + \beta_3 CON_{i,j,t} + \varepsilon_{i,j,t} \quad (1)$$

$$BRDR_{i,j,t} = \alpha + \beta_1 FD_{j,t} + \beta_2 CON_{j,t} + \beta_3 CON_{i,j,t} + \varepsilon_{i,j,t} \quad (2)$$

In this study, BCR refers to the bank capital ratio and is a proxy for bank capital. It is computed as the ratio of total capital to total assets. BRDR refers to the bank revenue diversification ratio measured as its noninterest income to net revenue (in %)—both BCR and BRDR measure bank risk. Consistent with the literature, we include a series of control variables which could impact bank capital, including the loan loss reserve ratio (LLRR), measured as the ratio of loan loss reserve to total assets (in %), which indicates the bank's credit risk. Bank size (TA), measured as the logarithm of total assets (in a million USD), is included to control the bank size effect. The liquidity ratio, measured as the ratio of deposits to assets (DA), indicates the bank's liquidity. Return on Assets (ROA) has been added to control for bank profitability.

We utilise two widely used indicators in literature to assess a nation's financial development level. Firstly, the ratio of stock market capitalisation to GDP (in percentage terms) to calculate stock market development (SMD) is used. According to the literature, more established stock markets give businesses an additional external financing source and reduce the amount of external financing that businesses need to come from banks. Secondly, the ratio of domestic credit extended by the banking sector to GDP (in percentage terms) has been used to measure banking sector development (BSD). The coefficient β_1 in the equation should be significant and positive if a bank's behaviour is positively influenced by financial growth. We have estimated the equations based on unbalanced panel OLS regressions and with White's heteroscedasticity-consistent robust standard errors and covariance.

4. Results

We start by discussing the summary statistics presented in Table 1. The bank's summary statistics and macroeconomic data are included in Table 1. A summary of the 920 bank-year observations in the original sample is shown in Panel A. The ratio of total capital to total assets, or the average (median) bank capitalisation ratio, is 15.03%, but the median proportion of non-income to net revenue is 17.4%. The average (median) stock market development, as shown by the stock market capitalisation to GDP ratio, is 60.5%, as shown in Panel BA.

Table 1: Summary statistics

	Mean	Median	Std. Dev.	Min	Max
Panel A: Original sample (N = 920 bank-year observations)					
BCR	15.03	12.14	13.05	-131.25	94.73
BRDR	17.40	16.89	11.76	-4.41	96.05
TA	7.15	6.5	1.18	2.57	10.21
LLRR	4.08	2.48	10.00	0.19	148.74
DA	68.05	71.10	15.20	24.96	97.90
ROA	1.83	1.88	2.12	-24.35	9.20
Panel B: Macro-level variables by country (N = 10 years)					
GDP growth	4.14	6.01	4.39	1.13	7.4
SMD	60.5	80.56	23.70	50.67	80.35
BSD	80.71	90.32	54.39	61.03	110.39

We winsorize important bank-level variables (i.e., LLRR, BRDR, TA) at the 1% and 99% quantile to deal with outliers. This leaves us 920 bank-year observations as the final sample. We provide an overview of the main variables for the final sample in Panel B. Regarding the median, mean, and SD, these numbers are like those shown in Panel A.

Table 2: Correlation

	BCR	BRDR	TA	LLRR	DA	ROA	GDP	SMD	BSD
BCR	1								
BRDR	0.10***	1							
TA	0.27***	0.32***	1						
LLRR	0.29***	0.14***	-0.19***	1					
DA	-0.10***	0.01	0.05	-0.03	1				
ROA	-0.13***	0.24***	0.54***	-0.08	0.02	1			
GDP	0.42***	0.32***	-024***	-0.50***	-0.51***	-0.17***	1		
SMD	-0.19***	0.24***	0.42***	-0.07*	0.25***	0.72***	0.35***	1	
BSD	-0.17***	0.11***	0.43***	-0.41***	-0.18***	0.47***	0.48***	0.13***	1

This table reports correlation coefficients for 800 bank-year observations from 2012-2022. ***, **, and * describe significance at 1%, 5% and 10% levels, respectively.

Table 2 shows correlation coefficients for important variables. The correlation coefficients between the variables are all less than 0.80, indicating that multicollinearity is not a significant concern.

Table 3: Impact of financial development on bank capital and Income Diversification

	Bank Capital Ratio (BCR)	Bank Revenue Diversification (BRDR)
Constant	78.033**	51.033**
	8.529	12.529
TA	-1.437**	-2.71**
	(.55)	(.47)
LLRR	-0.02	0.181
	(.44)	(.28)
DA	-.40***	-.196***
	(.06)	(.016)
ROA	.432	.781
	(.322)	(.127)
GDP	-.382**	-.211**
	(.19)	(.431)
SMD	-.018**	.023
	(0.011)	(0.011)
BSD	-.125***	-.235
	(.04)	(.01)
Adjust R2	0.47	0.67
F-statistic	14.721***	19.52**
Banks included	120	120
Observations	920	920

We examine the relationship over the whole sample period between two financial development metrics: bank capital variations and revenue diversification. The coefficient linked to SMD is negative and significant at the 5% significance level. After considering the trade openness, bank-level characteristics, and GDP growth, the coefficient of bank sector development (BSD) is negative while being statistically significant at the 1% level, suggesting that the growth of the banking sector tends to lower bank capitalisation ratios. The growth of the banking industry has a substantial negative economic impact. The results in column (2) suggest that the

coefficients related to SMD and BSD in certain specifications do not exhibit statistical significance. The findings imply that financial progress cannot explain differences in bank revenue diversification. We have been investigating how financial development affects bank risk-taking over the sample period thus far. Our results for capital and income diversification align with Vithessonthi (2014). Bank size shows a statistically significant negative relationship between capitalization and income diversification. As banks become bigger, they become riskier. Liquidity also negatively impacts bank risk for the capital and income diversification equations. An increase in liquidity makes banks riskier. Credit risk and profitability coefficients are not statistically significant. GDP growth also increases bank risk, statistically significant at 5% for capitalization and revenue diversification.

5. Conclusion:

The research supports that bank risk tends to rise with financial development. A negative association was found between bank capital and financial development. Furthermore, a positive correlation, albeit statistically insignificant, exists between bank revenue diversification and financial progress. However, according to the sample, development in the banking industry appears detrimental to bank capital in the GCC countries. This finding will raise concerns for bank regulatory and supervisory authorities. Additionally, some research indicates that banks' willingness to take on risk does not always change when they meet the minimum regulatory capital requirement. Consequently, bank risk and financial development have a favourable relationship. More risk is introduced into the financial system in this context by these pro-cyclical collective capital structure modifications compared to nations whose financial systems are based on markets. Furthermore, some research indicates that banks' willingness to take on risk is not always impacted by satisfying the minimum regulatory capital requirement.

Additional research could build on this work by comparing government-owned and private banks as their ownership structure and networks differ. Researchers may also compare Islamic and conventional banks, as higher compliance requirements constrain Islamic banks' operations. Researchers may also separate the sample between different business cycles and examine the impact of COVID-19 on how it relates to financial development and bank risk-taking. While financial development can lead to the emergence of new opportunities for businesses, it can also put the general health of the financial system in danger. The findings of this study underline the significance of bank supervision as a means of curbing banks' excessive risk-taking (e.g., maintaining low bank capitalisation ratios or expanding non-core banking operations). In conclusion, financial development will continue to be vital to the economy's growth, particularly for businesses operating in developing nations. Additionally, banking research in the GCC regions' nations will benefit from a thorough understanding of how financial development affects financial stability.

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