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THE IMPACT OF BANK SIZE ON PRE- AND POST- MERGER AND ACQUISITION PERFORMANCE AND STABILITY: NEW EVIDENCE FROM GCC AND PAKISTAN

Nazim Ullah^A, Fauzias Mat Nor^B, Junaidah Abu Seman^C, Nur Ainna Binti Ramli^D, Ahmad Fadly Nurullah Bin Rasedee^E



ARTICLE INFO	ABSTRACT
<p>Article history:</p> <p>Received 03 August 2023</p> <p>Accepted 06 November 2023</p>	<p>Purpose: This study contributes to the existing literature by providing a comprehensive overview of the complex relationship between level of bank sizes, factors, M&A performance, and stability for banking sectors, Islamic vs conventional banks, and by highlighting the importance of considering the specific characteristics of the banking industry in GCC and Pakistan.</p>
<p>Keywords:</p> <p>Merger and Acquisition; Level of BANK SIZES; Factors; Operational Performance; Stability; Banking Sectors; Islamic VS Conventional Banks.</p>	<p>Theoretical framework: The conceptual framework is developed and designed based on the theory and in line with the literature review. The theories are resource dependency theory and efficiency theory</p> <p>Design/Methodology/Approach: This paper employs an unbalanced panel data of 24 banks consisting of 10 Islamic banks and 14 conventional banks from GCC and Pakistan, 2004Q1 to 2020Q4. Data is collected from several secondary sources, namely Bloomberg, FitchConnect database, Bank’s financial statement, IMF, and World Bank database.</p> <p>Findings: Our results revealed that bank size has a significant impact on the M&A performance and stability of banks. However, there is no significant difference between pre- and post- M&A performance. Interestingly, smaller banks outperformed larger and medium-sized banks in terms of M&A performance, while larger and medium-sized banks exhibited better bank stability than smaller banks. Interestingly, while looking at Islamic vs conventional banks point of view results show that operational performance of Islamic is better than conventional banks. On the other hand, stability of conventional bank is better than Islamic banks.</p>
	<p>Research, Practical, & Social implications: The limitations of this research should also be acknowledged and future research should expand the number of observations and including more Islamic banks is essential. Moreover, exploring the impact of cultural and regulatory differences on M&A activities is also an interesting avenue for further research. Additionally, future research should investigate the impact of M&A activities on other performance measures, such as efficiency, productivity, and profitability.</p> <p>Originality/Value: This study aims to fill the theoretical and empirical research gap by examining the impact of level of bank size on pre- and post - M&A activities in the GCC and Pakistan for banking sectors, Islamic banks vs conventional banks.</p>

^A PhD in Finance, Assistant Professor. Department of Business Administration, International Islamic University Chittagong (IIUC). Bangladesh. E-mail: kmnazm_90@yahoo.com Orcid: 0000-0003-0494-8109

^B PhD in finance, Professor of Finance. Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia (USIM). E-mail: fauzias@usim.edu.my Orcid: 0000-0002-5764-8321

^C PhD in Fiancé, Senior Lecturer. Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia (USIM). E-mail: junaidah@usim.edu.my Orcid: 0000-0002-4425-9087

^D PhD in Finance, Senior Lecturer. Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia (USIM). E-mail: nurainna.ramli@usim.edu.my Orcid:0000-0003-4452-8176

^E PhD in Mathematics, Senior Lecturer. Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia (USIM). E-mail: fadlynurullah@usim.edu.my Orcid:0000-0002-4425-9087

O IMPACTO DO TAMANHO DO BANCO NO DESEMPENHO E ESTABILIDADE PRÉ E PÓS-FUSÃO E AQUISIÇÃO: NOVAS EVIDÊNCIAS DO GCC E DO PAQUISTÃO

RESUMO

Objetivo: Este estudo contribui para a literatura existente, fornecendo uma visão abrangente da complexa relação entre o nível de tamanho dos bancos, fatores, desempenho de fusões e aquisições e estabilidade para os setores bancários, bancos islâmicos versus bancos convencionais, e destacando a importância de considerar as características específicas do setor bancário no CCG e no Paquistão.

Referencial teórico: O referencial conceitual é desenvolvido e desenhado com base na teoria e em consonância com a revisão da literatura. As teorias são a teoria da dependência de recursos e a teoria da eficiência

Design/Metodologia/Abordagem: Este artigo emprega dados em painel não balanceados de 24 bancos, consistindo em 10 bancos islâmicos e 14 bancos convencionais do GCC e do Paquistão, 2004T1 a 2020T4. Os dados são recolhidos de diversas fontes secundárias, nomeadamente Bloomberg, base de dados FitchConnect, demonstrações financeiras do Banco, FMI e base de dados do Banco Mundial.

Constatações: Nossos resultados revelaram que o tamanho dos bancos tem um impacto significativo no desempenho e na estabilidade das fusões e aquisições dos bancos. No entanto, não há diferença significativa entre o desempenho pré e pós-F&A. Curiosamente, os bancos mais pequenos superaram os bancos grandes e médios em termos de desempenho de fusões e aquisições, enquanto os bancos grandes e médios exibiram melhor estabilidade bancária do que os bancos mais pequenos. Curiosamente, ao olhar para o ponto de vista dos bancos islâmicos versus bancos convencionais, os resultados mostram que o desempenho operacional dos bancos islâmicos é melhor do que o dos bancos convencionais. Por outro lado, a estabilidade dos bancos convencionais é melhor do que a dos bancos islâmicos.

Implicações de investigação, Práticas e Sociais: As limitações desta investigação também devem ser reconhecidas e pesquisas futuras devem expandir o número de observações e incluir mais bancos islâmicos é essencial. Além disso, explorar o impacto das diferenças culturais e regulamentares nas atividades de F&A é também um caminho interessante para futuras pesquisas. Além disso, pesquisas futuras deverão investigar o impacto das atividades de F&A em outras medidas de desempenho, como eficiência, produtividade e lucratividade.

Originalidade/valor: Este estudo visa preencher a lacuna de investigação teórica e empírica, examinando o impacto do nível do tamanho do banco nas atividades pré e pós-F&A no CCG e no Paquistão para os setores bancários, bancos islâmicos versus bancos convencionais.

Palavras-chave: Fusões e Aquisições, Nível de Tamanho dos Bancos, Fatores, Desempenho Operacional, Estabilidade, Setores Bancários, Bancos Islâmicos VS Convencionais.

EL IMPACTO DEL TAMAÑO DE LOS BANCOS EN EL DESEMPEÑO Y LA ESTABILIDAD ANTES Y DESPUÉS DE LAS FUSIONES Y ADQUISICIONES: NUEVA EVIDENCIA DEL CCG Y PAKISTÁN

RESUMEN

Propósito: Este estudio contribuye a la literatura existente al proporcionar una visión integral de la compleja relación entre el nivel de tamaño de los bancos, los factores, el desempeño de las fusiones y adquisiciones y la estabilidad de los sectores bancarios, los bancos islámicos versus los convencionales, y resaltando la importancia de considerar las características específicas del sector bancario en el CCG y Pakistán.

Marco teórico: El marco conceptual se desarrolla y diseña con base en la teoría y en línea con la revisión de la literatura. Las teorías son la teoría de la dependencia de recursos y la teoría de la eficiencia.

Diseño/Metodología/Enfoque: Este documento emplea un panel de datos no balanceado de 24 bancos, 10 bancos islámicos y 14 bancos convencionales del CCG y Pakistán, del primer trimestre de 2004 al cuarto trimestre de 2020. Los datos se recopilan de varias fuentes secundarias, a saber, Bloomberg, la base de datos FitchConnect, los estados financieros del Banco, el FMI y la base de datos del Banco Mundial.

Hallazgos: Nuestros resultados revelaron que el tamaño de los bancos tiene un impacto significativo en el desempeño y la estabilidad de las fusiones y adquisiciones de los bancos. Sin embargo, no existe una diferencia significativa entre el desempeño antes y después de las fusiones y adquisiciones. Curiosamente, los bancos más pequeños superaron a los bancos grandes y medianos en términos de desempeño en fusiones y adquisiciones, mientras que los bancos grandes y medianos exhibieron una mayor estabilidad bancaria que los bancos más pequeños. Curiosamente, si se analiza el punto de vista de los bancos islámicos frente a los convencionales, los resultados muestran que el rendimiento operativo de los bancos islámicos es mejor que el de los bancos convencionales. Por otro lado, la estabilidad de los bancos convencionales es mejor que la de los bancos islámicos.

Implicaciones prácticas, Sociales y de Investigación: También se deben reconocer las limitaciones de esta investigación y las investigaciones futuras deberían ampliar el número de observaciones y es esencial incluir más bancos islámicos. Además, explorar el impacto de las diferencias culturales y regulatorias en las actividades de fusiones y adquisiciones también es una vía interesante para futuras investigaciones. Además, las investigaciones futuras deberían investigar el impacto de las actividades de fusiones y adquisiciones en otras medidas de desempeño, como la eficiencia, la productividad y la rentabilidad.

Originalidad/Valor: este estudio tiene como objetivo llenar el vacío de investigación teórica y empírica examinando el impacto del nivel de tamaño del banco en las actividades previas y posteriores a las fusiones y adquisiciones en el CCG y Pakistán para los sectores bancarios, los bancos islámicos frente a los bancos convencionales.

Palabras clave: fusiones y adquisiciones, nivel de tamaño de los bancos, factores, desempeño operativo, estabilidad, sectores bancarios, bancos islámicos versus bancos convencionales.

INTRODUCTION

Mergers and acquisitions (M&A) refer to the process of combining two or more companies to form a larger entity or acquiring one company by another. The banking sector has been continuously evolving and expanding over the years. In the banking industry, M&A activity has been on the rise in recent years due to a number of factors, including globalization, deregulation, and the need to achieve economies of scale. M&A in the banking industry can take many forms, such as the acquisition of a smaller bank by a larger one, a merger between two similarly sized banks, or the acquisition of a non-bank financial institution by a bank. M&A activity can have significant implications for the banking industry, including changes in market structure, competition, and financial stability.

The paper relies on a couple of theories to underpin its objectives. One of these theories is the resource dependency theory, which uses bank sizes such as total assets, total deposits, and operating income to explain organizational phenomena (Kandil & Chowdhury, 2014; Morris, 2004). Another theory used is the efficiency theory, which argues that mergers and acquisitions are motivated by improved performance that can lead to cost savings, economies of scale and scope, and the optimal use of resources through portfolio diversification (Daniya, Onotu, & Abdulrahman, 2016; Weitzel & McCarthy, 2011).

Bank size is a critical factor in the banking sector that has been extensively studied in the literature, with some studies proposing that larger banks are "too big to fail" for conventional banks (Baker & McArthur, 2009; Ennis & Malek, 2005), while others suggest that smaller banks are "too small to succeed" for example, Islamic banks (Naseri, Bacha, & Masih, 2020). Kwenda, Oyetade & Dobрева (2017), Aladwan (2015), Abduh, & Idrees (2013), and Haron (2004) have noted an inverse relationship between bank size and performance, where bank performance tends to increase as bank size decreases. Moreover,, Kosmidou, Pasiouras, Doumpou, &

Zopounidis (2006) argue that smaller banks perform better than larger banks financially, while Katib and Mathews (2000) found that medium-sized banks are more efficient than large banks. On the contrary, Amene, & Alemu (2019) finds that larger banks enjoy better profits than smaller banks in the Ethiopian banking sector. Nafti et al. (2017) and Ruslan, Pahlevi, Alam, & Nohong (2019) found that bank size has a positive influence on bank profitability through bank efficiency. Fang, C. K. Lu, Tan, & Zhang (2019) have conducted a study in China that found a correlation between bank size and performance. Interestingly, some studies reported that size does not matter in determining bank performance (Micco et al., 2007).

The Gulf Cooperation Council (GCC) countries are expected to reach a GDP of US\$2 trillion by 2022, which is projected to increase to US\$6 trillion by 2050. The banking sector in the GCC and Pakistan has undergone significant changes, including regulatory reforms and foreign investment, resulting in a rise in M&A activities in the region (The World Bank, 2022). In 2022, Multiply Group led the GCC M&A market, which saw a total of 59 transactions and a 23% YoY growth, with Al Salam Bank's acquisition of Ithmaar Bank's consumer banking businesses being the second-largest transaction (Cabral, 2022). Saudi Arabia recorded the highest quarterly growth in M&A at 175%, while the UAE recorded the highest YoY growth at 50%. Despite a 23% decline in total deals in the MENA region, The Emirates signed 155 deals worth \$17.2bn from January to September 2022, as per an EY report. M&A activity in the region is expected to be driven by higher crude oil prices, favorable government initiatives, and MENA investors looking for future investment opportunities in foreign markets (Zawya, 2022).

The recent empirical studies have provided further insights into the relationship between bank size, M&A, and performance, while also highlighting the need for region-specific research. Moreover, studies on M&A in the financial sector have only involved conventional banks, with little known about M&A in the Islamic banking sector (Ibrahim & Rizvi, 2017; Kandil & Chowdhury, 2014). The relationship between bank size and M&A activities in the GCC and Pakistan region remains a conundrum, and there is limited research on this topic. Consequently, this paper aims to fill this research gap by examining the impact of bank size on M&A activities in the GCC and Pakistan. Specifically, this study aims to answer two research questions: (1) Does bank size have a significant impact on M&A on operational performance and stability in the banking sector? (2) Does the level (large, medium & small) of bank size have a significant impact on pre-and post-M&A on operational performance and stability in the banking sector?

This paper employs panel data techniques such as fixed effects and random effects to analyze a sample of 24 banks involved in M&A activities in the GCC countries and Pakistan from 2004Q1 to 2020Q4. The sample includes six countries and covers a wide range of bank sizes. Return on assets (ROA), return on equity (ROE), and Z-score are used as measures of operational performance and stability. The results of the study show that bank size has a significant impact on M&A performance and stability. Smaller banks outperform larger and medium-sized banks in M&A performance, while larger and medium-sized banks more stable than the smaller banks in the region. The study suggests that M&A activities are more potential for financial institutions like Islamic banks, which tend to be smaller in size. Therefore, policymakers should focus on the difference in the size of banks in making M&A decisions. Additionally, the results of this study may have broader implications for other emerging market economies, which are also experiencing similar trends in their banking sectors.

The paper is structured as follows. The first section provides an introduction. The second section presents a literature review of the relationship between bank size, M&A performance, and stability. The third section discusses the data and methodology used in the study. The fourth section presents the results of the study. The fifth section provides a discussion of the results and their implications. Finally, the paper concludes with a summary of the findings, limitations of the study, and future research directions.

THEORETICAL REFERENTIAL

Two main theories of M&A exist: shareholder value maximization (also known as the value creation strategy) and shareholder non-value maximization (known as the value reduction strategy), according to Weitzel and McCarthy (2011). The efficiency theory is used to explain the value maximization strategy, while the management entrenchment theory and hubris theory are used to explain the value reduction strategy. Other theories, such as the behavior theory and neoclassical theory, are also employed to explain M&A.

The efficiency theory proposes that mergers are carefully planned and will only happen if they are predicted to create enough realizable synergies that will make the deal profitable for both the acquiring and target parties. Many scholars, such as Daniya et al. (2016) and Weitzel & McCarthy (2011), have emphasized that the primary motivation behind M&A is to gain synergy in terms of operating and financial advantages, which can lower costs or increase revenue. Neoclassical theory has been employed by Polemis & Paleologos (2014) and Petmezas (2009). In addition, the behavioral approach has been utilized by Polemis & Paleologos (2014)

and Shleifer & Vishny (2003). Furthermore, Kandil & Chowdhury (2014) and Morris (2004) have utilized the resource dependency theory. Weitzel & McCarthy (2011) and Shleifer & Vishny (1989) have employed the management entrenchment theory, which is a shareholder's non-value maximization theory.

At the same time, Resource Dependency Theory (RDT) explains how external resources, such as skilled workers, total assets, money, technology, raw materials, and other intangible assets, affect the behavior of an organization. Nair, Trendowski & Judge (2008) assert that a firm's resources include tangible and intangible assets that produce effective services planned by the firm. In the banking sector, there is a close relationship between M&As and bank stability. When banks merge, they can integrate various resources, such as human capital, technology, and assets, and mobilize the expertise of their personnel to improve their financing and deposit collection capabilities. This results in more efficient and effective management of the bank's core functions, which ultimately leads to improved performance and financial stability in a competitive market.

Bank stability is a measure of the soundness of a bank that indicates its financial strength and resilience to systematic shocks. The Z-score is a commonly used measure of bank stability (Ibrahim & Rizvi, 2018; Wahid & Dar, 2016). Ibrahim and Rizvi (2018) assert that large banks are more stable, which can reduce earnings volatility by lowering risk levels (De Haan & Poghosyan, 2012). Larger banks are capable of diversifying and generating economies of scale in information production, monitoring transaction costs, achieving cost efficiency, risk sharing, revenue enhancement, performance, and resource diversification, as well as increasing market power and bank stability (Skully & Perera, 2012). Bank Negara Malaysia (BNM), the Central Bank of Malaysia, released a statement on February 5, 2020, supporting larger banks that promote financial stability and economic growth, naming the country's three largest banks as Domestic Systemically Important Banks (D-SIBs). While Čihák and Hesse (2010) found mixed results, Wahid and Dar (2016) suggest that small Islamic banks are more stable than small conventional banks, and large Islamic banks are less stable than large conventional banks. Diaconu and Oanea (2015) have identified internal determinants (capital ratio, efficiency ratio, liquidity, and lending activity) and external determinants (GDP) as the most critical factors affecting both stability and profitability. Additionally, bank stability is influenced by interest and non-interest activities (Skully & Perera, 2012).

The size of a bank is a crucial factor that has been extensively studied in the literature. Some studies suggest that larger banks are "too big to fail" for conventional banks, while others

suggest that smaller banks are "too small to succeed," especially in the case of Islamic banks. Several studies, including Kwenda et al. (2017), Aladwan (2015), Malahim, Alrawashdeh, Saraireh, Salameh, Yaseen, & Khalil (2023) and Haron (2004), have noted an inverse relationship between bank size and performance, where bank performance tends to increase as bank size decreases. Kosmidou et al. (2006) argue that smaller banks perform better than larger banks financially, while Katib and Mathews (2000) found that medium-sized banks are more efficient than large banks. However, Amene and Alemu (2019) found that larger banks enjoy better profits than smaller banks in the Ethiopian banking sector. Some studies, including Micco et al. (2007) and Abduh and Idrees (2013), find no relationship between bank size and performance. On the contrary, Nafti et al. (2017); Faliza (2023) and Ruslan et al. (2019) found that bank size has a positive influence on bank profitability through bank efficiency. Fang et al. (2019) conducted a study in China that found a correlation between bank size and performance.

Along with the level of banks sizes, the paper also look at the several factors such as bank size (generally), intermediary roles, liquidity, capitalization, credit risk, as well as macro-economic variables. As previously it is found that bank size had positive effects on M&A activities (Doğan, 2013; Lee, 2009). While other said that it had negative effects (Abeyrathna, & Priyadarshana, 2019; Almaqtari, Al-Homaidi., Tabash, & Farhan, 2019). Sufian (2011) explained that motives for M&A is to have economies of scope rather than scale. Mustafa et al. (2017) said that uncertainty and volatility are reduced by M&A. Whereas Focarelli, & Pozzolo (2001) states that acquisition is made to improve the quality of the portfolio of acquired banks.

Accordingly, M&A contributes to abnormal returns and negatively impacts profitability on the banking industry (Banal-Estanol & Ottaviani, 2007). Malatesta (1983), Alexandridis, & Sariannidis (2014) and Sufian et al. (2012) found that M&A reduce the performance of acquirer bank immediate after M&A. Antoniadis, posited that differences between merging partners in their loan and credit risk strategies are conducive to higher performance. Fayed (2013) suggests that conventional banks are better than Islamic banks in profitability, credit risk, liquidity, overall management, and solvency ratio. Boloupremo & Ogege (2019) showed that credit risk has minimal and is negatively associated with performance, while capitalization and liquidity are positively related to performance.

Importance of macroeconomic situation cannot be denied. Gross domestic product (GDP) and inflation have a significant impact on banking activities (Ibrahim & Rizvi, 2017; Salaber, Rao-Nicholson & Cao, 2016; Abbas, Hunjra., Azam, Ijaz, & Zahid, 2014; Kandil & Chowdhury, 2014; Gattoufi, Al-Muharrami, & Shamas, 2014). Macro-economic variables like

GDP and inflation are also used following Cortés, Agudelo, & Mongrut (2017) and Erel, Jang, Minton, & Weisbach (2017). Choi & Jeon (2011) said that GDP as the most relevant factor in long-run relationships and determining the trend of aggregate mergers activity.

Therefore, the relationship between level of bank sizes, factors and performance remains a topic of debate in the literature, and further research is needed to clarify the issue. Consequently, this paper aims to study the impact of M&A in two ways, firstly, the effects of level of bank sizes on the banking sectors. Secondly, the effects of several factors towards Islamic vs conventional banks in the Middle East and North Africa (MENA) region, particularly in countries outside of the GCC and Pakistan.

METHODOLOGY

Data Samples and Measurement

This paper employs an unbalanced panel data of 24 banks consisting of 10 Islamic banks and 14 conventional banks from GCC and Pakistan^F, 2004Q1 to 2020Q4. Data is collected from several secondary sources, namely Bloomberg, FitchConnect database, Bank's financial statement, IMF, and World Bank database. After filtering, 53 banks were omitted from the data set because outlier, missing financial information, and data range do not fall within the selected time. Using this sample, the results are reported into 5 years pre & 5 years post M&A. Moreover, this range is based on the previous studies (Abbas Hunjra, Azam, Ijaz, & Zahid, 2014; Al-Sharkas et al., 2008; and Yener & Ibáñez, 2004).

Panel data techniques, namely POLS and static model [i.e., fixed effect (FE) and random effect (RE)]. FE is also known as within estimator or least square dummy variable estimator or covariance estimator. Fixed effects (FE) regression is used to control for omitted variables that differ between cases but are constant over time. This is the benefit of FE used to estimate the effect of omitted independent variables on the dependent variable. Meanwhile, the random effect (RE) model is the estimator if we believe that some omitted variables that are constant over time and differ across the cases and others may be fixed between cases and vary over time. It is the less restrictive estimator. Hausman test is used to select between fixed effect and random effect.

Dynamic models (system GMM and difference GMM) are applied in this paper since number of groups are small (only 24 banks). Due to small number of groups, number of

^F Saudi Arabia, Qatar, Bahrain, Kuwait, UAE, and Pakistan. Those countries are selected because of the M&A deal of Islamic banks happen within those periods i.e., from 2004 to 2020.

instruments shows high. Therefore, this paper proceeds with the application of the static models.

Return on asset (ROA) and return on equity (ROE) are used as a proxy for operational performance and Z-score is used to measure bank stability. Several explanatory focus variables are used such as bank size (i.e., total assets, total deposits, operating income), level of bank sizes (dummies), i.e., large, medium, and small based on total assets, total deposits, and operating income, the financial intermediary role is measured by the cost to income (economies of scale) & loan to deposit (economies of scope) and the non-financial intermediary role is measured by non-interest expense to non-interest income. Several control variables are applied, such as liquidity ratio, capitalization ratio, and credit risk; macroeconomic variables consist of GDP & inflation. Table 1 explains the variables.

Table 1 Variables explanations

Variables	Code	Definition	Features/ Description	Sources	Expected sign
Operational Performance	ROA and ROE	ROA and ROE measure the operational performance of the banking sector. ROA; how the manager is efficient to have better ROA by using bank assets. While ROE implies profit generated with the money shareholder have invested.	Return on asset (ROA) is defined as income after tax as a percentage of total assets. Return on equity (ROE) is defined as income after tax as a percentage of total equity.	FitchConnect database, bankscope and bank's annual report	Positive
Bank Stability	Z-score	Bank Stability	Measure the level of risk of the banking sector. It is measured by Z-score = (return on asset (ROA) + equity to total asset) / standard deviation of return on asset (ROA).	Author calculation	Positive
Level of bank sizes	BSTA _{LMS} BSTD _{LMS} BSOI _{LMS}	Bank size total assets large, medium, and small (BSTA _{LMS}) Bank size total deposits large, medium, and small (BSTD _{LMS}) Bank size operating income large, medium, and small (BSOI _{LMS})	Sorting banks measure the level of bank sizes from the lowest to the largest. i.e., there are 24 banks. All banks are arranged from the lowest to the largest. And then, the first 8 banks are sorted as the small banks, the second 8 banks are sorted as medium-sized banks while the last 8 banks are sorted as the largest banks.	Author calculation	Positive Positive

Source: (Ibrahim & Rizvi, 2017; Salaber, Rao-Nicholson & Cao, 2016; Abbas et al., 2014; Kandil & Chowdhury, 2014; Gattoufi et al., 2014; Sufian & Habibullah, 2009; Al-Sharkas et al., 2008; Linder & Crane, 1993; Mustafa et al., 2017; Focarelli et al., 2002; Abbas et al., 2014; Rani, Yadav, & Jain, 2016; Rehan, Khan, & Khan, 2018; Daniya et al., 2016; and Al-Sharkas et al., 2008)

Model specification

The following models are designed for the analysis of M&A.

$$Y_{nt} = \alpha_{nt} + \beta X_{nt} + \epsilon_{nt} \dots\dots\dots (Eq 1)$$

Operational Performance

Return on Asset (ROA)

$$\begin{aligned} ROA_{nt} = & \alpha_{nt} + \beta_1 BSTA + \beta_2 BSTD + \beta_3 BSOI + \beta_4 Escal_{nt} + \beta_5 Escop_{nt} + \beta_6 NFIR_{nt} + \beta_7 FIN_{nt} + \\ & \beta_8 LIDY_{nt} + \beta_9 CAP_{nt} + \beta_{10} CR_{nt} + \beta_{11} GDP_{nt} + \beta_{12} INF_{nt} + \rho_{13} BSTA_{LMSnt} + \rho_{14} BSTD_{LMSnt} + \\ & \rho_{15} BSOI_{LMSnt} \qquad \qquad \qquad \rho_{16} FIN_{nt} \qquad \qquad \qquad + \qquad \qquad \qquad \epsilon_{nt} \\ & \dots\dots\dots (Eq 2) \end{aligned}$$

Return on Equity (ROE)

$$\begin{aligned} ROE_{nt} = & \alpha_{nt} + \beta_1 BSTA + \beta_2 BSTD + \beta_3 BSOI + \beta_4 Escal_{nt} + \beta_5 Escop_{nt} + \beta_6 NFIR_{nt} + \beta_7 FIN_{nt} + \\ & \beta_8 LIDY_{nt} + \beta_9 CAP_{nt} + \beta_{10} CR_{nt} + \beta_{11} GDP_{nt} + \beta_{12} INF_{nt} + \rho_{13} BSTA_{LMSnt} + \rho_{14} BSTD_{LMSnt} + \\ & \rho_{15} BSOI_{LMSnt} \qquad \qquad \qquad \rho_{16} FIN_{nt} \qquad \qquad \qquad + \qquad \qquad \qquad \epsilon_{nt} \\ & \dots\dots\dots (Eq 3) \end{aligned}$$

Net Interest Margin (NIM)

$$\begin{aligned} NIM_{nt} = & \alpha_{nt} + \beta_1 BSTA + \beta_2 BSTD + \beta_3 BSOI + \beta_4 Escal_{nt} + \beta_5 Escop_{nt} + \beta_6 NFIR_{nt} + \beta_7 FIN_{nt} + \\ & \beta_8 LIDY_{nt} + \beta_9 CAP_{nt} + \beta_{10} CR_{nt} + \beta_{11} GDP_{nt} + \beta_{12} INF_{nt} + \rho_{13} BSTA_{LMSnt} + \rho_{14} BSTD_{LMSnt} + \\ & \rho_{15} BSOI_{LMSnt} \qquad \qquad \qquad \rho_{16} FIN_{nt} \qquad \qquad \qquad + \qquad \qquad \qquad \epsilon_{nt} \\ & \dots\dots\dots (Eq 4) \end{aligned}$$

Bank Stability

Bank Stability (Z-score)

$$\begin{aligned} Z\text{-score}_{nt} = & \alpha_{nt} + \beta_1 BSTA + \beta_2 BSTD + \beta_3 BSOI + \beta_4 Escal_{nt} + \beta_5 Escop_{nt} + \beta_6 NFIR_{nt} + \\ & \beta_7 FIN_{nt} + \beta_8 LIDY_{nt} + \beta_9 CAP_{nt} + \beta_{10} CR_{nt} + \beta_{11} GDP_{nt} + \beta_{12} INF_{nt} + \rho_{13} BSTA_{LMSnt} + \rho_{14} BSTD_{LMSnt} \end{aligned}$$

$$+ \rho_{15}BSOI_{LMSnt} + \rho_{16}FIN_{nt} + \mathcal{E}_{nt} \quad (Eq 5)$$

Where:

α ; constant term,
 β ; coefficient for exogenous variables,
 ρ ; coefficient for dummy variables,
 ROA; return on asset,
 ROE; return on equity,
 NIM; net interest margin
 Z-score; bank stability,
 BSTA_{LMS}; bank size- total assets -large, medium and small
 BSTD_{LMS}; bank size- total deposits -large, medium and small
 BSOI_{LMS}; bank size- operating income -large, medium and small
 Escale; cost to income ratio,
 Escope; loan to total deposits,
 NFIR; non-interest cost to non-interest income,
 LIDY; liquid asset to total assets,
 CAP; equity to total assets,
 CR; loan loss reserve to gross loan,
 GDP; gross domestic products,
 INF; inflation,
 \mathcal{E} ; error term.

Diagnostic test

Before running data set, it is necessary to check diagnostic test for accuracy and avoid any bias in the estimation. Multicollinearity, heteroscedasticity, and auto-correlation are tested and the results are shown in Table 2. Based on the Table 2, it is shown that there is no problem of Multicollinearity but the problem of heteroskedasticity and auto correlation is exist.

Table 2: Diagnostics tests

Test	Test value	Decision role
Multicollinearity	Vif = 8.10	Since the value is less than 10, it shows no multicollinearity problem
Heteroskedasticity	Chi2 (19) = 6800.10, Prob>chi2 = 0.0000.	Since the p-value is less than 5%, Ho hypothesis is rejected i.e., Heteroskedasticity problem exists
Auto-correlation	F(1, 17) = 10.473, Prob > F = 0.0049	Since the p-value is less than 5%, Ho hypothesis is rejected, i.e., the auto-correlation problem exists

Source: (Whites, 1980; Ramesh, 1998)

RESULTS AND DISCUSSIONS

The descriptive statistics of the unbalanced panel data set for relevant variables. It shows preliminary features of the data. The results are divided into three parts, pre & post-M&A, pre-M&A, and post-M&A. The shows that the mean of all variables is positive. Interestingly, the mean after M & M&A is better (i.e., with expected sign) than the pre-M&A period except for a few variables. At the same time, Table A1.1 presents the correlation matrix. It shows that there is no problem of multicollinearity, whereas heteroskedasticity and autocorrelation problem are exits. To solve the problem, Whites (1980) heteroskedastic-consistence covariance matrix estimation and vce (robust) is used throughout the regressions are used throughout the regressions.

Multivariate Results of M&A on Operational Performance (ROA)

Table 3 shows the multivariate results of M&A on the bank's operational performance (ROA). The results are shown as pre-M&A and post-M&A for pooled samples. The results are estimated by applying OLS and static models, i.e., fixed and random effects. Based on the Hausman test, the fixed-effects model is selected. Moreover, there are two measurements for operational performance, namely, return on assets (ROA) and return on equity (ROE). However, most of the variables do not show a significant impact on ROE, and hence the results of ROE are not reported.

In the pre-M&As scenario, Table 3 posits operational performance (ROA). R-squared is 0.13, which means that ROA is variance explained by the explanatory variables (Model-3). Firm size is an important determinant of profitability (Dickerson et al., 1997). Throughout the findings, it is shown that the level of bank sizes (large, medium and small) based on total assets show comparative impact on the ROA. The results show that large banks (BSTA_L) show 0.723 units less impact on the ROA than reference groups (BSTA_L & BSTA_S) that are statistically significant at 10% level (Model 1). While BSTA_M also show the same impact but are not statistically significant (Model 2). Finally, BSTA_S show 0.507 units impact on ROA compared to the reference group (BSTA_L & BSTA_M) which is statistically significant at 10% level (Model 3). Therefore, it concludes that BSTA_S show a better impact on ROA than reference groups (BSTA_L & BSTA_M). The finding is consistent with Muhammad, Waqas, & Migliori (2019), who found that small organizations are more likely to bear fruitful results of M&A in comparison to the larger organizations, as they later may pose greater challenges for management. Furthermore, the findings are supported by the resource dependency theory, which said that resources significantly impact the organization's outcome.

Intermediary role (financial and non-financial) Based on the results, it shows that intermediary bank roles (financial and non-financial) play a significant impact on the pre-M&As of the banking sectors. The findings show that (Model 3), financial and non-financial intermediary role show negative and statistically significant impacts on operational performance. Pointing to the results, for every 1-unit increases (decreases) Escale and Escope tend to decrease (increase) ROA by 0.011 units and 0.005 units, respectively which is statistically significant at 1% level. The finding is inconsistent with Brown (2014) who found that the cost to income ratio (economies of scale) had significant and negative ROA. Likewise, the non-financial intermediary role (NFIR) is negatively associated with ROA. Looking at the findings, 1-unit increases (decreases) to NFIR that would tend to decrease (increase) ROA by 0.065 units that is significant at 5% level. The findings are supported by efficiency theory and the theory of financial intermediation. Efficiency theory states that the main reason for M&As is to generate better performance, while the theory of financial intermediation implies that bank performance depends on the intermediary activities of banks.

Liquidity (LIDY) and capitalization (CAP) show positive impact on ROA. Meaning that 1 unit increase to LIDY and CAP would increase ROA by 0.085 units and 0.009 units which is statistically significant at 5% and 1% level, respectively. The finding of liquidity is inconstant with Brown (2014), who found that liquidity does not significantly impact ROA. While although the coefficient of credit risk is negative but not statistically significant. On the other hand, macro-economic variables also show significant and positive impact on operational performance. Diaconu & Oanea (2015) stated that banks' internal determinant greatly impacts bank stability, which means that 1 unit increase in the GDP and inflation (INF) would increase ROA by 3.076 units and 0.090 units, which is statistically significant at 10% and 1% level respectively.

In the post M&As scenario, Table 3 shows significant results of operational performance (ROA) for banking sectors. R-squared (within) is 0.751 which means that ROA is the variance explained by the explanatory variables. Post-acquisition performance can be influenced by size (Dickerson et al., 1997). The level of bank sizes (large, medium and small) significantly impacts operational performance (ROA). The coefficient of large banks is not statistically significant.

In contrast, medium sized banks are significant at 1% level, which means that medium-sized banks impact 2.355 units less on the operational performance than reference groups (large and small). Similarly, small-sized banks show positive impact on operational performance.

Meaning that the operational performance of the banking sectors is 1.475 units more compared to reference groups (large and medium) that is significant at 1% level.

Interestingly the impact is 0.968 units more compared to pre-M&As. Aladwan (2015) noted that performance deteriorated with increased size, performance becomes less when bank size increase. Kosmidou, Pasiouras, Doumpos, & Zopounidis (2006) observed that small banks performed better than larger banks. Al-Sharkas, Hassan & Lawrence (2008) suggested that small banks merger recorded greater cost efficiency improvement than large banks mergers.

Intermediary role (financial and non-financial) shows significant impact as well. When 1 unit increase (decrease) to the financial intermediary role (economies of scale) reduces operational performance by 0.019 units which is significant at 10% level. The finding is consistent with Jaouad & Lahsen (2018) and Brown (2014), who showed that cost to income ratio had a negative and significant impact on performance. Compared to the pre-M&As, the effect is 0.01 units more in post-M&As. This result is consistent with Nguyen et al. (2012), who indicated that larger banks are the possibility of minimizing costs and benefiting from economies of scale. While 1 unit increase to economies of scope would tend to increase operational performance by 0.014 units, which is statistically significant at 1% level. The impact is 0.013 units more compared to pre-M&As.

On the contrary, the non-financial intermediary role negatively associated with operational performance. 1 unit increase to the non-financial intermediary role that ten to increase operational performance by 0.076, significant at 5% level. The impact is 0.011 units more compared to pre-M&As.

M&A financed by cash is better compared to stock financing. The result is consistent with Kwenda, Oyetade, & Dobрева (2017) and Betschinger (2012). While opposite of Sullivan et al. (1994) who found that returns to acquirers are not influenced by the method of financing M&As deals. Accordingly, Dogru, Kizildag, Ozdemir, & Erdogan, 2020) said that the acquirer's performance is lower due to the higher free cash flow.

As mentioned earlier, a number of control variables are used in the present study. For example, bank-specific variables namely liquidity, credit risk and capitalization, while macro-economic variables, namely GDP and inflation. Credit risk and capitalization show the positive impact on operational performance. Meaning that 1 unit increase to credit risk and capitalization would increase operational performance by 0.041 units and 0.042 units which is statistically significant at 5% and 1% level respectively. The coefficient of liquidity is not statistically significant in explaining the changes in ROA and then the results are left undiscussed. The

result is inconsistent with Brown (2014) who found that liquidity significantly impacts ROA. On the other hand, macro-economic variables also show significant and positive impact on operational performance. Meaning that 1 unit decrease to inflation would decrease operational performance by 0.176 units, which is significant at a 5% level. While GDP does not show any significant impact on explaining the relationship between M&As and operational performance.

Table 3: Multivariate Results Of The Bank's Operational Performance (ROA) For Banking Sectors

	Pre M&A			Post M&A		
	FE (1)	FE (2)	FE (3)	RE (1)	RE (2)	RE (3)
BSTA_L	-0.723* (0.093)			1.926 (0.235)		
BSTA_M		-0.330 (0.192)			-2.355*** (0.000)	
BSTA_S			0.507* (0.076)			1.475*** (0.000)
Escale	-0.013*** (0.000)	-0.013*** (0.000)	-0.011*** (0.001)	0.073** (0.030)	-0.079** (0.027)	-0.019* (0.068)
Escope	-0.004* (0.066)	-0.004** (0.047)	-0.005*** (0.007)	-0.039*** (0.000)	-0.012*** (0.000)	0.014*** (0.003)
NFIR	-0.025** (0.005)	-0.043 (0.205)	-0.065** (0.019)	0.006*** (0.000)	-0.094 (0.353)	-0.076** (0.024)
LIDY	0.049 (0.152)	0.058* (0.098)	0.085** (0.043)	0.055 (0.816)	0.024 (0.153)	0.057 (0.651)
CR	-0.0118** (0.022)	-0.009** (0.029)	-0.006 (0.813)	0.078*** (0.009)	0.021 (0.424)	0.041** (0.019)
CAP	-0.0145 (0.467)	-0.009 (0.589)	0.009*** (0.007)	0.010*** (0.007)	-0.0279 (0.464)	0.042*** (0.005)
GDP	18.880 (0.284)	21.510** (0.017)	3.076* (0.067)	0.792* (0.060)	0.843*** (0.000)	-0.043 (0.399)
INF	0.052*** (0.000)	0.058 (0.629)	0.090*** (0.005)	-0.036*** (0.005)	-0.231** (0.048)	-0.176** (0.020)
FIN				0 (.)	0 (.)	0.023*** (0.004)
_cons	-18.070 (0.316)	-20.820 (0.294)	-2.290 (0.346)	0 (.)	0 (.)	0.023*** (0.004)
Chow test: POLS vs FE	0.000	0.000	0.000			
LIM test: POLS vs RE	1.000	1.000	1.000			
Hausman test: FE vs RE	0.000	0.000	0.000			
R-sq within	0.121	0.118	0.127	0.645	0.752	0.751
R-sq between	0.11	0.094	0.082	0.014	0.002	0.012
R-sq overall	0.067	0.059	0.057	0.066	0.023	0.043
N	207	207	207	213	213	213
p-values in parentheses						

Notes: samples consist of 24 banks from 6 countries, year from Q1 2004 to Q4 2020. All; general bank size, Large; the largest volume of 8 banks out of 24 banks, Medium; the medium volume of 8 banks out of 24 banks, small; the lowest volume of 8 banks out of 24 banks, BSTA; bank size total assets, BSTD; bank size total deposits, BSOI; bank size operating income, Escale; cost to income, Escope; loan to deposit, NFIR; non-interest cost to non-interest income, LIDY; liquidity, CR; loan loss reserve to gross loan, CAP; equity to total assets, GDP; gross domestic product, INF; inflation and FIN; modes of financing cash or stock.

Source: Author calculation

Multivariate Results of M&A on Bank Stability (Z-score)

Table 4 shows the multivariate result of bank stability (Z-score). The results are reported in pre-M&A and post-M&A. Based on the Hausman test, the fixed effects model is selected. Bank size shows negative effects, i.e., 1% increases in bank size reduces bank stability by 0.19%. While the large and medium-sized banks imply better bank stability, i.e., 1% increase in larger and medium-sized bank assets increases bank stability by 1.5% and 0.2%, respectively.

In pre-M&A scenario, the bank sizes, namely large, medium and small, significantly impact bank stability. Referring to these, the coefficient of large-sized banks (BSTA_L) is positive but not statistically significant. Although the coefficient is not statistically significant, it seems that there is the probability that BSTA_L positively impact on the Zscore. Accordingly, BSTA_M imply 1.15 units more impact on bank stability than reference groups (BSTA_L and BSTA_S), which is statistically significant at a 5% level. Whereas BSTA_S show 2.34 units lower impact on Zscore compared to the reference group (BSTA_L & BSTA_M), which is statistically significant at 1% level. Therefore, it is concluded that the large and medium-sized banks more impact bank stability compared to small-sized banks.

Intermediary roles (financial and non-financial) show significant impact on the bank stability as well. 1 unit increase Escope that would tend to reduce Zscore by 0.041 units statistically significant at 1% level. Another proxy for financial intermediary (Escale) does not show any statistically significant in explaining the changes in Zscore. On the contrary, the non-financial intermediary role (NFIR) positively associated with Zscore. Meaning that 1 unit increase to NFIR that tend to increase Zscore by 0.007, significant at 1% level.

Liquidity (LIDY) and capitalization (CAP) show positive impact on stability (Zscore). Meaning that 1 unit increase to LIDY and CAP would increase Zscore by 0.082 units and 1.107 units which is statistically significant at 10% and 5% level, respectively. The findings are consistent with Marembo (2012), who said that adequate capitals help lessen the chance that banks will become insolvent if sudden shocks occur, ensuring financial sector stability. While credit risk (CR) does not show any statistically significant impact on stability. On the other hand, macro-economic variables also show significant and positive impact on Zscore. Meaning that 1 unit increase to the GDP would tend to increase Zscore by 1.5 units that is statistically significant at 1% level. At the same time, inflation (INF) does not impact Zscore since the coefficient is not statistically significant. Therefore, it concludes that favorable economic conditions are fundamental for the strong solvency of banking sectors. The more the value of the bank stability the less fragile of the banking sectors.

In the post M&As scenario, the level of bank sizes, namely large (BSTA_L), medium (BSTA_M) and small (BSTA_S), based on total assets, significantly impact bank stability. Referring to these, the coefficients of BSTA_L and BSTA_M are positive and statistically significant. The BSTA_L has more impact, meaning Zscore compared BSTA_M and BSTA_S. Whereas BATS_M also show the same impact as BSTA_L. On the other hand, BSTA_S show 1.980 units less impact on bank Zscore than BSTA_L and BSTA_M. Therefore, it is concluded that the BSTA_L and BSTA_M more impact bank Zscore compared to BSTA_S. The findings are consistent with Ibrahim & Rizvi (2018), who implied that larger banks are more stable. However, these findings are inconsistent with Čihák, & Hesse (2010) found that small banks are more stable, whereas Al-Sharkas, Hassan & Lawrence (2008) stated that small and larger banks are more profitable. Ibrahim & Rizvi (2018, Demirgüç-Kunt, & Merrouche (2010) suggested that bigger is better for bank stability. Increasing bank size would reduce earnings volatility and make the bank less fragile (Moutsianas & Kosmidou, 2016). However, this is the opposite of Čihák & Hesse (2010), who opined that small banks are more stable.

Intermediary roles (financial and non-financial) show significant impact on bank stability. Looking at the findings, 1 unit increase to Escale and Escope would tend to reduce Zscore by 0.083 units and 0.073 units, respectively, which is statistically significant at 1% level. On the contrary, the non-financial intermediary role (NFIR) positively associated with stability. Meaning that 1 unit increase to NFIR that tend to increase stability by 0.096 units that is significant at 1% level.

Modes of financing (FIN) also show a significant and positive impact on stability (Zscore). Meaning that 1.506 units increase bank stability when M&A s financed by cash compared to the stock financing that is significant at 1% level.

Liquidity (LIDY) and capitalization (CAP) show positive impact on stability (Zscore). Meaning that 1 unit increase in LIDY and CAP would increase Zscore by 0.033 units and 0.832 units respectively which is statistically significant at 1% level. While credit risk (CR) shows negative impact on Zscore. I unit increase (decrease) to CR that would reduce Zscore by 0.008 units significant at 10% level. On the other hand, macro-economic variables, namely GDP and inflation (INF) do not show a statistically significant impact on the bank stability of post-M&As.

Table 4: Multivariate Results Of Bank Stability (Z-Score) For Banking Sectors

Pre M&A			Post M&A		
FE	FE	FE	RE	RE	RE
(1)	(2)	(3)	(1)	(2)	(3)

BSTA_L	4.833 (0.229)			0.738 (0.674)		
BSTA_M		1.15** (0.029)			8.960*** (0.000)	
BSTA_S			-2.34*** (0.000)			-1.98*** (0.000)
Escale	0.013 (0.522)	0.002 (0.955)	-0.025 (0.203)	-0.132*** (0.000)	-0.095*** (0.000)	-0.083*** (0.000)
Escope	-0.059*** (0.000)	-0.041*** (0.006)	-0.037*** (0.001)	-0.091*** (0.000)	-0.092*** (0.000)	-0.073*** (0.000)
NFIR	-0.007 (0.282)	0.007*** (0.007)	-0.048 (0.645)	-0.044*** (0.000)	-0.015** (0.020)	0.096 (0.232)
LIDY	0.128* (0.100)	0.082* (0.073)	0.018 (0.234)	0.034*** (0.000)	0.019** (0.017)	0.033*** (0.000)
CR	0.236*** (0.000)	0.114 (0.252)	0.058 (0.705)	-0.535*** (0.003)	-0.425*** (0.007)	-0.278 (0.101)
CAP	1.472** (0.023)	1.107** (0.049)	0.981*** (0.000)	1.057*** (0.000)	1.053*** (0.000)	0.832*** (0.000)
GDP	25.200 (0.142)	13.500* (0.108)	-22.180* (0.099)	-1.831*** (0.000)	-3.129*** (0.000)	-0.394 (0.113)
INF	-3.818 (0.198)	-3.048 (0.171)	-1.009 (0.195)	-0.543 (0.308)	-0.414 (0.362)	0.0611 (0.896)
FIN				1.670 (0.261)	2.009 (0.224)	1.506*** (0.010)
_cons	-230.500 (0.131)	-138.800 (0.155)	44.910*** (0.002)	9.086*** (0.001)	12.030*** (0.000)	17.430*** (0.000)
Chow test: POLS vs FE	0.000	0.000	0.000			
LIM test: POLS vs RE	1.000	1.000	1.000			
Hausman test: FE vs RE	0.000	0.000	0.000			
R-sq within	0.668	0.752	0.785	0.609	0.712	0.763
R-sq between	0.072	0.143	0.107	0.252	0.538	0.444
R-sq overall	0.026	0.110	0.092	0.339	0.565	0.552
N	207	207	207	207	207	207

p-values in parentheses

Notes; samples consist of 24 banks from 6 countries, year from Q1 2004 to Q4 2020. Large; the largest volume of 8 banks out of 24 banks, Medium; the medium volume of 8 banks out of 24 banks, small; the lowest volume of 8 banks out of 24 banks, BSTA; bank size total assets, BSTD; bank size total deposits, BSOI; bank size operating income, Escale; cost to income, Escope; loan to deposit, NFIR; non-interest cost to non-interest income, LIDY; liquidity, CR; loan loss reserve to gross loan, CAP; equity to total assets, GDP; gross domestic product, and INF; inflation and FIN; modes of financing (cash or stock)

Source: Author calculatiuon

Multivariate Results of M&A on Operational Performance (ROA) for Islamic VS Conventional Banks

Table 5 shows result of ROA pre and post M&As for Islamic and conventional banks. In pre M&A, R-squared (within) for Islamic and conventional banks are 0.143 and 0.512 respectively. It implies that the variance of ROA that is explained by the explanatory variable (Chowdhury, & Rasid, 2016; Ben Kosmidou, 2008).

In the pre-M&As scenario, bank size (BATA) negatively impacts the ROA of the Islamic banks by 0.538 units at 1% significant level while it positively affects performance of conventional banks. The results are in line with Dickerson et al. (1997). Bank's intermediary

roles (financial and non-financial) effects both types of banks. Financial intermediary role negatively impacts on the ROA of both banks which is counter intuitive. The finding is opposite of the findings of Ibrahim & Rizvi (2018). While non-financial intermediary role (NFIR) is positively associated with the ROA of Islamic and conventional banks.

Accordingly, looking at other bank specific variables such as credit risk, liquidity and capitalization, liquidity is not statistically significant, Credit risk shows negative, and capitalization shows positive impact on the operational performance. Based on the findings, it implies that conventional banks are more sensitive compared to Islamic banks. However, the impact is negative for both banks but significantly greater (0.052 units) for conventional banks than Islamic banks. Since financing of the Islamic banks is gone through Shariah screening and hence their credit risk is also lower. In contrast, financing of the conventional banks does not have any Shariah screening process, their proportion of risk is also high. Capitalization shows positive impact on the performance of M&A of Islamic and conventional banks. Comparatively impact of capitalization on Islamic banks is more (0.061 units) compared to conventional banks. The findings are consistent with Diaconu & Oanea (2015), who stated that banks' internal determinant significantly impacts their performance. Lastly, both bank's performance is affected by GDP and inflation as well. Whereas GDP shows positive effects whereas, inflation The finding is consistent with Amene & Alemu (2019).

In the post-M&As scenario, the R-squared (within) of the operational performance (ROA) for Islamic banks is 0.367, which means ROA variance that is explained by the explanatory variables. On the other hand, for conventional banks it is 0.838 that is significantly more compared to Islamic banks. The value shows that the explanatory variables well explain ROA of conventional banks.

Likely pre-M&As, bank size (total assets) shows a significant impact on the M&As of Islamic and conventional banks. More specially, bank size is positively associated with the Islamic banks' operational performance while showing the opposite impact for conventional banks, The finding is supported by Dickerson et al. (1997). Furthermore, Ibrahim & Rizvi (2017) and Barth et al. (2006) found positive results. Comparatively, the operational performance of the conventional banks is reduced by 0.519. For both banks ROA is greatly impacted by the bank size compared to the pre-M&A period. The proportion of the coefficient of bank size of Islamic bank increase by 0.227 units compared to the pre-M&As period. Inversely, for conventional banks the difference is 0.332 units. Therefore, it is seen that the impact of bank size is greater for the operational performance of conventional banks by 0.105

units. Economies of scale positively impacts the operational performance of Islamic banks. The results are consistent with Vernanda & Widyarti (2016) Vernanda & Widyarti (2016).

Modes of financing is also used as the factors. Cash financing is better than stock. The results are consistent with (Dickerson et al., 1997) and Bertrand and Betschinger (2012) who mentioned that the financing method positively impacts performance. While the finding is the opposite of Sullivan et al. (1994) who found that returns to acquirers are not affected by the method of financing M&As deals. Accordingly, Dogru, Kizildag, Ozdemir, & Erdogan (2020) said that the acquirer's performance is lower due to the higher free cash flow.

Accordingly, other bank specific variables such as credit risk, capitalization and liquidity have significant impact on the ROA of Islamic and conventional banks. the finding implies that credit risk and capitalization have significant impact on the post M&As outcomes for Islamic and conventional banks. At the same time, liquidity does not show statistically significant in explaining ROA changes and is left undiscussed. Credit risk shows negative while capitalization shows positive impact on the operational performance of Islamic and conventional banks. The findings are in line with those associated with Boloupremo & Ogege (2019). Based on the findings, it implies that conventional banks are less sensitive compared to Islamic banks. Although the impact is negative for both banks but significantly greater (0.178 units) for Islamic banks compared to conventional banks. Capitalization shows a positive impact on the performance of M&A of Islamic and conventional banks. Comparatively impact of capitalization on Islamic banks is more (0.053 units) compared to conventional banks.

Finally, GDP and inflation imply significant impact on the outcome of M&A. GDP and inflation indicate a statistically significant impact on the ROA of Islamic and conventional banks. The finding is further supported by Dang (2016) and Wang (2014) and Amene, & Alemu (2019) who suggested that GDP has a positive and significant impact on encouraging M&As activities. While inflation states negative impact on performance of both types of banks.

Table 5; Multivariate Results Of The Bank's Operational Performance (ROA) For Islamic And Conventional Banks

	Islamic bank Pre M&A			Conventional bank Pre-M&A			Islamic bank Post-M&A			Conventional bank Post-M&A		
	POLS	FE	RE	POLS	FE	RE	POLS	FE	RE	POLS	FE	RE
BSTA	-0.363*** (0.000)	-0.538*** (0.000)	-0.363*** (0.000)	0.187** (0.016)	0.187** (0.015)	0.187** (0.015)	0.764*** (0.001)	0.765*** (0.000)	0.764*** (0.000)	-0.366*** (0.000)	-0.519*** (0.000)	-0.366*** (0.000)
Escale	-0.042* (0.101)	-0.013* (0.005)	-0.042* (0.107)	-0.089*** (0.000)	-0.057*** (0.000)	-0.089*** (0.000)	0.035*** (0.001)	0.035*** (0.000)	0.035*** (0.000)	-0.0270*** (0.000)	-0.0141** (0.012)	-0.0270*** (0.000)
Escope	-0.0568 (0.721)	-0.012* (0.074)	"-0.057" (0.720)	-0.440*** (0.000)	-0.660*** (0.001)	-0.440*** (0.000)	0.00618 (0.237)	0.00621** (0.020)	0.00618 (0.230)	-0.00757** (0.014)	-0.0250 (0.130)	-0.00757** (0.013)
NFIR	0.073*** (0.002)	0.023*** (0.009)	0.074** (0.050)	-0.024 (0.814)	0.012** (0.013)	-0.024 (0.814)	-0.315* (0.098)	-0.316* (0.085)	-0.315* (0.090)	-0.004*** (0.000)	-0.003*** (0.000)	-0.004*** (0.000)
LIDY	0.00471 (0.490)	-0.00497 (0.161)	0.00471 (0.488)	0.068* (0.097)	-0.029 (0.500)	0.019 (0.287)	-0.0110 (0.854)	-0.0108 (0.854)	-0.0110 (0.853)	-0.003*** (0.001)	0.00122 (0.414)	-0.003*** (0.001)
CR	0.042** (0.047)	-0.065*** (0.002)	0.042** (0.044)	-0.084** (0.031)	-0.117** (0.015)	0.084** (0.030)	0.210 (0.149)	-0.210** (0.006)	0.210 (0.141)	0.0739*** (0.001)	-0.0320** (0.035)	-0.074*** (0.001)
CAP	-0.038*** (0.007)	0.067*** (0.000)	-0.038*** (0.006)	0.048*** (0.000)	0.006* (0.051)	0.048*** (0.000)	0.132* (0.095)	0.133* (0.070)	0.132* (0.087)	0.00284 (0.834)	0.0802** (0.026)	0.00284 (0.834)
GDP	16.59*** (0.000)	3.580 (0.488)	16.59*** (0.000)	-0.039 (0.476)	-0.009 (0.474)	-0.039 (0.475)	5.028*** (0.000)	5.037*** (0.000)	5.028*** (0.000)	0.0674* (0.094)	0.393* (0.076)	0.0674* (0.092)
INF	-0.0686 (0.655)	-0.236* (0.086)	-0.0686 (0.654)	-0.063*** (0.001)	-0.033** (0.020)	-0.063*** (0.001)	4.016* (0.062)	-3.984** (0.040)	4.016* (0.055)	-0.194*** (0.005)	-0.376*** (0.000)	-0.194*** (0.004)
FIN							0.658* (0.057)	0 (0)	0.658** (0.050)	-0.152* (0.052)	0 (.)	-0.152** (0.050)
_cons	-13.38*** (0.000)	2.065 (0.700)	-13.38*** (0.000)	1.298* (0.071)	0.948 (0.552)	1.298* (0.070)	-32.97*** (0.000)	-32.95*** (0.000)	-32.97*** (0.000)	5.024*** (0.000)	6.706*** (0.000)	5.024*** (0.000)
Chow test: POLS vs FE	0.004			0.000			0.000			0.000		
LIM test: POLS vs RE	1.000			1.000			1.000			1.000		
Hausman test: FE vs RE	0.000			0.000			0.000			0.000		
R-sq	0.520			0.578			0.803			0.856		
R-sq within	0.1427			0.5116			0.3673			0.8377		
R-sq between	0.0836			0.3717			0.0369			0.7728		
R-sq overall	0.037			0.195			0.283			0.4822		
N	0.034			0.3063			0.2325			0.605		
p-values in parentheses	0.186			0.577			0.8027			0.8535		
*p<0.1 ** p<0.05, ***p<0.01	101	101	101	200	200	200	52	52	52	149	149	149

NOTES: samples consist of 24 banks including 10 Islamic banks and 14 conventional banks from 6 countries, a year from Q1 2004 to Q4 2020. Islamic banks (IB), Conventional banks (CB), Pre-M&A; 5 years before M&A deal, Post M&A; 5 years after M&A, bank size total assets (BSTA), cost to income (Scale), loan to deposit (Escope), the non-interest cost to non-interest income (NFIR), liquidity (LIDY), loan loss reserve to gross loan (CR), equity to total assets (CAP), gross domestic product (GDP), inflation (INF), financing (cash or stock) (FIN)

Source: Author calculation

Multivariate Results of M&A on Bank Stability (Z-score) for Islamic VS Conventional Banks

Table 6 displays the stability results of pre and post M&As for both types of banks. In pre-M&As, the R-squared (within) of the stability (Zscore) of Islamic and conventional banks are 0.829 and 0.988, respectively. It implies that Zscore is varianced by explanatory variables.

In the pre-M&As scenario, bank size (BATA) implies impact on stability of both types of banks. It implies that stability raises when bank size increase and vice-versa. Financial intermediary roles, namely Escale and Escope, negatively impact the stability. The non-financial intermediary role does not significantly impact the stability of Islamic banks, while the stability of the conventional banks tends to reduce.

Based on the findings, it is shown that bank-specific variables; Islamic bank stability is impacted by liquidity, while the stability of conventional banks does not show any effect. It's stability is not impacted by credit risk. Capitalization shows positive implications for both banks. The findings are consistent with the findings of Marembo (2012). GDP and inflation show negative impact on the stability.

In the post-M&As scenario, the R-squared (within) of Islamic and conventional banks' stability (Zscore) are 0.817 and 0.957, respectively.

Bank size (BSTA) does not show any impact and left discussed. Whereas bank size positively impacts the stability of conventional banks, which is statistically significant. The intermediary role (financial) also shows significant impact on the stability of the Islamic and conventional banks. Comparatively, the impact is more by 0.04 units compared to conventional banks. While Escale and NFIR do not show any impact.

Other factors namely modes of financing also used as the factors. The results conclude that cash financing impacts the stability of Islamic banks compared to stock financing. Inversely stability of conventional banks positively impacts by 1.699 units more compared to stock financing.

As like as before, capitalization and liquidity imply impact on the stability while credit risk does show impact. The findings are consistent with Marembo (2012). GDP indicates positive impact on stability while inflation does not.

Table 6: Multivariate Results Of Bank Stability (Z-Score) For Islamic And Conventional Banks

	Islamic bank Pre-M&A			Islamic bank Post-M&A			Conventional bank Pre-M&A			Conventional bank Post-M&A		
	POLS	FE	RE	POLS	FE	RE	POLS	FE	RE	POLS	FE	RE
BSTA	4.517*** (0.000)	4.517*** (0.000)	4.517*** (0.000)	-0.072** (0.034)	0.051 (0.126)	-0.072** (0.029)	0.386** (0.016)	0.386** (0.015)	0.386** (0.015)	2.806*** (0.000)	3.494** (0.015)	2.853*** (0.000)
Escale	-0.138*** (0.000)	-0.138*** (0.000)	-0.138*** (0.000)	0.013 (0.411)	-0.012 (0.318)	0.013 (0.407)	-0.02*** (0.000)	-0.01*** (0.000)	-0.02*** (0.000)	0.005 (0.900)	0.005 (0.943)	0.004 (0.895)
Escape	-0.020** (0.025)	-0.020** (0.023)	-0.020 (0.123)	0.067 (0.938)	-0.05*** (0.002)	0.067 (0.938)	-0.91*** (0.000)	-1.36*** (0.001)	-0.91*** (0.000)	-0.109*** (0.000)	-0.09*** (0.000)	-0.108*** (0.000)
NFIR	-0.092 (0.491)	-0.092 (0.490)	-0.092 (0.490)	0.155*** (0.000)	0.0575 (0.150)	0.155*** (0.000)	-0.049 (0.814)	0.025** (0.013)	-0.049 (0.814)	0.0157 (0.110)	0.00957 (0.531)	0.0156 (0.109)
LIDY	0.024*** (0.005)	0.024*** (0.005)	0.024*** (0.005)	0.034 (0.971)	0.057** (0.043)	0.032 (0.971)	0.009 (0.527)	-0.044 (0.220)	-0.089 (0.95)	0.0365*** (0.000)	0.009* (0.078)	0.0365*** (0.000)
CR	0.137 (0.413)	-0.137 (0.411)	0.137 (0.411)	0.085*** (0.000)	-0.006 (0.648)	0.085*** (0.000)	0.174** (0.031)	-0.242** (0.015)	0.174** (0.030)	-0.081 (0.678)	0.033 (0.875)	-0.064 (0.739)
CAP	0.905*** (0.000)	0.905*** (0.000)	0.905*** (0.000)	0.032** (0.013)	0.044** (0.047)	0.032*** (0.010)	2.163*** (0.000)	2.053*** (0.000)	2.163*** (0.000)	1.157*** (0.000)	1.937*** (0.001)	1.146*** (0.000)
GDP	-12.31* (0.101)	-12.31* (0.098)	-12.31* (0.098)	0.559*** (0.000)	0.051*** (0.000)	0.559*** (0.000)	-0.0815 (0.476)	-0.0185 (0.474)	-0.0815 (0.475)	-0.531 (0.123)	2.196*** (0.002)	-0.540 (0.115)
INF	-1.816** (0.031)	-1.816*** (0.009)	-1.816*** (0.009)	0.226 (0.509)	0.246 (0.109)	0.226 (0.506)	-0.13*** (0.001)	-0.068** (0.020)	-0.13*** (0.001)	1.095* (0.061)	1.789 (0.196)	1.095* (0.059)
FIN				0.324*** (0.000)	0 (.)	0.324*** (0.000)				2.023*** (0.003)	0 (.)	2.004*** (0.003)
_cons	-0.830 (0.920)	-0.830 (0.920)	-0.830 (0.920)	-2.228*** (0.009)	0.999 (0.569)	-2.228*** (0.007)	2.681* (0.071)	1.957 (0.552)	2.681* (0.070)	-19.03*** (0.000)	-33.46** (0.036)	-19.51*** (0.000)
Chow test: POLS vs FE	0.000					0.000				0.000		
LIM test: POLS vs RE	1.000					1.000				1.000		
Hausman test: FE vs RE	0.000							0.000	0.000		0.000	
R-sq	0.787			0.904			0.995			0.950		
R-sq within		0.829	0.795			0.816	0.530	0.988	0.982		0.957	0.940
R-sq between		0.233	0.822			0.166	0.889	0.990	0.997		0.803	0.947
R-sq overall		0.426	0.787			0.135	0.900	0.994	0.99		0.895	0.948
N	136	136	136	64	64	64	200	200	200	149	149	149

p-values in parentheses *p<0.1 ** p<0.05, ***p<0.01

NOTES: samples consist of 24 banks including 10 Islamic banks and 14 conventional banks from 6 countries, a year from Q1 2004 to Q4 2020. Islamic banks (IB), Conventional banks (CB), Pre-M&A; 5 years before M&A deal, Post M&A; 5 years after M&A, bank size total assets (BSTA), cost to income (Scale), loan to deposit (Escape), the non-interest cost to non-interest income (NFIR), liquidity (LIDY), loan loss reserve to gross loan (CR), equity to total assets (CAP), gross domestic product (GDP), inflation (INF), financing (cash or stock) (FIN)

Source: Author calculation

CONCLUSION

In conclusion, this research highlights the crucial role that bank size plays in M&A activities affecting both the operational performance and stability of the banking sectors in GCC and Pakistan. The results of the study confirm that level of bank sizes (i. e., large, medium and small) have a significant impact on M&A performance and stability. Smaller banks outperform larger and medium-sized banks in M&A performance, while larger and medium-sized banks outperform smaller banks in terms of bank stability. While looking at Islamic vs conventional banks point of view, the factors such as bank size, intermediary roles, credit risk, liquidity, capitalization, GDP and inflation effects M&A of Islamic banks more compared to conventional banks.

The study suggests that M&A activities are more potential for financial institutions like Islamic banks, which tend to be smaller in size. Additionally, control and macro-economic variables were found to significantly impact M&A activities confirming earlier literature. Therefore, policymakers should focus on the level of bank sizes along with other factors such as bank size, intermediary roles, credit risk, liquidity, capitalization as well as macro-economic variables making M&A decisions for banking sectors as whole and looking separately for Islamic and conventional banks.

The implications of this research are significant for both policymakers and banking professionals. The findings suggest that policymakers should be cautious when approving M&A activities, particularly when involving small banks, as they may negatively impact the operational performance. On the other hand, medium and large banks may promote better bank stability, which is crucial for the financial system's health. For banking professionals, the study's findings suggest that they should also consider bank size when making M&A decisions. Large banks may benefit from economies of scale and scope, which can lead to cost minimization and diversification of resources. However, small banks can focus on enhancing their operational performance to remain competitive in the market. However, the limitations of this research should also be acknowledged and future research should expand the number of observations and including more Islamic banks is essential.

Moreover, exploring the impact of cultural and regulatory differences on M&A activities is also an interesting avenue for further research. Additionally, future research should investigate the impact of M&A activities on other performance measures, such as efficiency, productivity, and profitability.

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APPENDIX A

Table A1.1: Descriptive statistics of M&A performance in the banking sector

Variable	Pre & Post M&A				Pre M&A				Post M&A			
	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
Dependent Variables												
ROA	1.557298	2.56455	-6.95	46.68352	1.941467	2.371742	-6.95	12.3714	1.355233	1.063204	-.2835	9.417
ROE	10.23339	7.894439	-17.543	55.87	11.34841	9.64982	-17.543	35.02	10.61	7.252	-.9666	35.920
Bank Sizes												
BSTA	4.066736	.808154	.9141294	6.202057	3.834201	.8852784	1.157295	4.886168	4.165	.6785434	1.574392	5.331
BSTD	3.90245	.8687154	.7534135	6.883992	3.659679	.8624565	1.144273	4.778189	4.03471	.7051801	1.516683	5.121
BSOI	2.328651	.8360608	-1.926892	4.01353	2.228548	.7929657	-1.254892	3.534896	2.391105	.7560788	-.1179569	3.615
Financial Intermediary roles												
Escale	29.88626	33.96656	.1524428	294.574	38.68151	56.18835	.2586113	294.574	30.88844	27.379000	.3739	196.497
Eslope	66.49294	91.12687	0	978.4557	63.5235	77.31724	.3435763	819.2475	64.36014	86.57598	.199539	978.455
Non-financial Intermediary roles												
NFIR	1.250036	.5628302	.3958836	9.342298	1.889308	1.619408	.3958836	6.777	1.57603	1.059213	.531266	9.342
Control Variables												
LIDY	10.06683	9.134729	0	57.37	11.17023	10.52067	.126	57.37	10.71211	8.74999	.0675	41.580
CR	2.789806	4.392239	.1352117	48.17	2.63179	5.182744	.1352117	48.17	2.575981	1.88607	.1593	8.990
CAP	10.01983	8.05509	.32856	77.433	12.93379	12.08386	.42476	77.433	10.26168	6.30727	.33966	34.715
Macro-economic Variables												
GDP	4.589304	.4273297	3.734164	5.259261	4.592309	.3988622	3.763496	5.207441	4.649404	.4018549	3.734164	5.235
INF	2.044767	.0911613	1.938483	2.369846	2.013826	.0676713	1.947531	2.27777	2.032571	.0759494	1.938483	2.336
N= 720				N=166				N= 216				

NOTES: samples consist of 24 banks from 6 countries, year from Q1 2004 to Q4 2020. Pre & post; all data set, Pre; an average of three years before M&A deal, Post; an average of three years after M&A deals, ROA; return on asset, ROE; return on equity, BSTA; bank size total assets, BSTD; bank size total deposits, BSOI; bank size operating income, Escale; cost to income, Eslope; loan to deposit, NFIR; non-interest cost to non-interest income, LIDY; liquidity, CR; loan loss reserve to gross loan, CAP; equity to total assets, GDP; gross domestic product, INF; inflation.

Source: Author calculation

Table A1.2: Correlation matrix of the key variables

	ROA	ROE	BSTA	BSTD	BSOI	Escale	Escope	NFIR	LIDY	CR	CAP	GDP	INF
ROA	1.000												
ROE	0.2966*	1.000											
BSTA	0.0923*	0.4586*	1.000										
BSTD	0.0537	0.4539*	0.9517*	1.000									
BSOI	0.1834*	0.4775*	0.8151*	0.7766*	1.000								
Escale	-0.071	0.0677	-0.094*	-0.0631	-0.162*	1.000							
Escope	-0.0593	0.0264	0.0807*	0.0851*	0.0178	0.5973*	1.000						
NFIR	-0.057	0.0292	-0.214*	-0.206*	-0.175*	0.3543*	0.0744	1.000					
LIDY	0.0338	0.4862*	0.2994*	0.3157*	0.2310*	0.5680*	0.2070*	0.1320*	1.000				
CR	0.0445	0.1736*	-0.0274	-0.0503	-0.0606	0.3385*	0.2105*	0.2215*	0.2831*	1.000			
CAP	0.1287*	0.2809*	0.0852*	0.0983*	0.0898*	0.7189*	0.5640*	0.0695	0.5421*	0.3433*	1.000		
GDP	0.1044*	0.1032*	0.5331*	0.5078*	0.4646*	-0.195*	0.0292	-0.424*	-0.164*	-0.275*	-0.0313	1.000	
INF	-0.084*	-0.0613	-0.543*	-0.519*	-0.397*	0.0491	-0.148*	0.4221*	-0.105*	0.0959*	-0.198*	-0.555*	1.000

NOTES: ROA; return on asset, ROE; return on equity, BSTA; bank size total assets, BSTD; bank size total deposits, BSOI; bank size operating income, Escale; cost to income, Escope; loan to deposit, NFIR; non-interest cost to non-interest income, LIDY; liquidity, CR; loan loss reserve to gross loan, CAP; equity to total assets, GDP; gross domestic product, INF; inflation and * marks represent variables are significant at 5% level.

Source: Author calculation