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Ullah, Nazim and Mat Nor, Fauzias and Abu Seman,  
Junaidah and Ainna Binti Ramli, Nur and FADLY, AHMED

USIM

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# **Mergers and Acquisitions in Islamic Banking Sector: An Empirical Analysis on Size Effect, Market Structure, and Operational Performance**

Fauzias Mat Nor<sup>1</sup> \*Nazim Ullah<sup>2</sup> Junaidah Abu Seman<sup>3</sup> Nur Ainna Binti Ramli<sup>4</sup> Ahmad Fadly Nurullah Bin Rasedee<sup>5</sup>

## **Abstract**

The corporate expansion approach is mergers and acquisitions. The paper aims to analyze the impact of mergers and acquisitions on the Islamic banking sector's operational performance. This study uses empirical research methodologies, such as panel data regression, to examine samples of 10 Islamic banks involved in M&A from 6 countries, gathered from the International Monetary Fund, World Bank, FitchConnect, and Bloomberg from 2004Q1 to 2020Q4. Accounting-based measurements are used to quantify operational success, whereas the Herfindahl-Hirschman Index and the concentration ratio are used to signify market structure. To estimate M&A results, Stata package 14.2 is used (5 years pre and 5 years post). According to the findings, M&A improve the operational performance of Islamic banks. In addition, small-sized banks outperform large and medium-sized banks, market structure (LHHI) degrades M&A performance. Therefore, the paper suggests that Islamic banks should be involved in M&A deals and remove the constraints of size.

**Keywords:** M&A, Bank Sizes, Market Structure, Operational Performance, Islamic Bank

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<sup>1</sup> Professor of Finance, Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia (USIM), [fauzias@usim.edu.my](mailto:fauzias@usim.edu.my)

<sup>2</sup> Ph.D. Candidate, Faculty Economic and Muamalat, Universiti Sains Islam Malaysia (USIM), [kmnazm\\_90@yahoo.com](mailto:kmnazm_90@yahoo.com)

<sup>3</sup> Senior Lecturer, Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia (USIM), [junaidah@usim.edu.my](mailto:junaidah@usim.edu.my)

<sup>4</sup> Senior Lecturer, Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia (USIM), [nurainna.ramli@usim.edu.my](mailto:nurainna.ramli@usim.edu.my)

<sup>5</sup> Senior Lecturer, Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia (USIM), [fadlynurullah@usim.edu.my](mailto:fadlynurullah@usim.edu.my)

## 1.0 Introduction

Merger and acquisition (hereafter, M&A) is defined as the process of amalgamation of bidder and target. The terminological definition of a merger is the combination of two or more banks, whereas either a new entity exists or a combination of both (e.g.,  $\text{bank}_A + \text{bank}_B = \text{bank}_C$  or  $\text{bank}_{AB}$ ). Usually, it happens with equal-sized banks in a “merger of equals.” whereas acquisition implies the combination of two or more banks and the target banks cease to exist (e.g.,  $\text{bank}_A + \text{bank}_B = \text{bank}_A$ ). Typically, an efficient bank acquires an inefficient bank. M&A transactions are completed using a variety of payment method including cash, stock, or a combination of the two. M&A is a business strategy in which the ownership, business structure, liabilities, assets, and management of a bank are transferred or combined. The main objective of M&A is to have commercial potential, such as better performance, gaining market position, expanding operations in new markets, products, and services (economic and geographics expansions), gain market power, generating and exploiting economies of scale and scope, diversification of activities, and integration of resources.

In line with that, M&A has been in the mainstream news in recent years (Massoudi and Fontanella-Khan, 2016). According to the Refinitiv, Dealogic and PwC analysis of 2021, global M&As industry trends depict the number of deals in 2019, which was 50,085 with the value of USD3,440b, whereas in 2020, a total of 50,368 deals were achieved with a value of USD3,243b, and as of mid-year of 2021, the number of deals decreased to 28,936 with the value of USD2,453b. The statistics show that there is consistency throughout the year. Even in the middle of 2021, M&As performed well compared to preceding years. Although it is an old corporate strategy, it still a widely preferred corporate strategy.

In addition, due to the competitive business arena, structural modification of the financial system, financial enlargement, technological innovation, and demand for financial products took place. Financial institutions are currently facing multitudes of problems, and this alarming situation is a signal indicating the need to change their business approach appropriately in order to tackle this issue. With a vision to keep up with the fast pace and constant change in market trends, financial institutions should come up with a bulletproof strategy to survive the competition and structural modification of the business world.

In line with that, as explained by microeconomic theory, market structure influences the behaviour of their respective companies (Nurwati, Achسانی, Hafidhuddin, & Nuryartono, 2014). Two competing hypotheses have been discussed, which are the structure conduct performance (SCP) hypothesis, also known as the collusion hypothesis, and efficiency hypothesis [Al-Muharrami and Matthews (2009), Samad (2008), and Katib (2004)].

Interestingly, research on the case of conventional banking sector has been conducted since the beginning (i.e., beginning of the 20th centuries), whereas Islamic banking is yet to be discovered. Although academicians, professionals, and regulators are concerned, according to Ibrahim and Rizvi (2017), Kandil et al. (2014), and Iqbal (2008), in-depth research is lacking. This paper is going to analyze M&A in the Islamic banking sector empirically with the idea of the conceptual design of Ibrahim and Rizvi (2017), Kandil et al. (2014) and Iqbal (2008). Moreover, it focuses on bank sizes such as large, medium and small.

The multivariate results of M&A in the Islamic banking sector are reported in Table 5, Table 6 and Table 7 respectively. The result is reported in three (3) stages, such as pooled samples, i.e., pre and post, pre-M&A, and post-M&A period. The findings of this study indicate that the relatively pre-M&A period and post-M&A period results are better compared to pooled samples. However, compared to the pre-M&A, post-M&A shows better performance. Similarly, market structure has a direct effect on operational performance. The market structure reveals a highly concentrated market rather a highly competitive, regulated, and anti-trust system.

The section of the paper are the review of literature, research methodology, results, and discussions, followed by the conclusion.

## **2.0 Review of Literature**

### ***2.1 Theoretical Underpinning***

Theories on M&A are divided into two categories, namely, shareholder's value maximization (value creation strategy) and shareholder's non-value maximization (value reduction strategy) (Weitzel and McCarthy, 2011). The efficiency theory explains shareholder value maximization, while the management entrenchment theory and hubris theory explain the shareholder value reduction theory. There are also other theories applied in M&A, which are behavioral and neoclassical theories to explain the merger waves.

Specifically, within the sphere of the banking sector, many studies have used the efficiency theory and resource dependence theory (RDT). According to the efficiency theory, mergers are planned and will only occur when they are expected to generate enough realizable synergies to make a profitable deal among parties, bidder, and target. Several studies [i.e., Daniya et al. (2016) and Weitzel and McCarthy (2011)] mention that the main motive of M&A is to gain synergy in terms of operating and financial synergy. These synergies could be in the form of cost reductions or increased revenue. It is the symmetric expectations of gains that result in a friendly merger being proposed and accepted. If the gain in value for the target is not positive, it is suggested

that the target firm's owners would not sell to the acquisition. Similarly, if the bidder's owners gain a negative profit, the bidder would not complete the deal.

Whereas Resource Dependency Theory (RDT) is defined as an explanation of how an organization's external resources (i.e., skilled workers, total assets, money, technology, raw materials, etc.) affect the organization's behavior. Nair, Trendowski, and Judge (2008) claim that a firm's resources consist of tangible assets, human resources, and other intangible assets that produce effective services planned by the firm.

Since the market structure is concerned as well, according to microeconomic theory, a market structure influences the behavior of their respective companies (Nurwati, Achسانی, Hafidhuddin, & Nuryartono, 2014). Previous studies have discussed two competing hypotheses: the structure conduct performance (SCP) hypothesis and the efficiency hypothesis (Al-Muharrami, and Matthews, 2009). Market structure is measured by several tools such as HHI, Concentration ratio, Gini coefficient, Rosenbluth Index (ROS), Entropy Index (ENT), Linda Index, Lorenz Curve, Lerner Index, Horwath Index (HOR), Industrial Concentration Index (CCI), Hausas Indices, U index, Hanna-Keys Index (HKI), etc. [Barra., and Zotti (2019), Galetić, and Obradović (2018), Ginevičius, and Čirba (2007), and Bikker, and Haaf (2002)].

Based on the above-mentioned conflicting theoretical underpinnings, the following empirical analysis is reviewed to analyze whether these theoretical foundations explain the issue empirically.

## ***2.2 Empirical Underpinning***

According to Abbas et al. (2014), there is a positive relationship between bank performance and M&A deals. The study focuses on the US banking sector, which discovered a positive performance in productivity, profitability, and shareholders' value. Similarly, Daniya et al. (2016) and Al-Sharkas et al. (2008) analyzed and revealed improved and robust financial performance and cost-efficiency owing to mergers and acquisitions, leading to financial efficiency in the Nigerian banks.

According to the analysis of Kwenda, Oyetade & Dobрева (2017), Aladwan (2015), Srairi (2009) and Haron (2004), the impact of size on the performances of the Jordanian commercial banks is significant. The estimated result stated that there is an inverse relationship between size and bank performance, i.e., bank performance tends to increase when bank size decreases. Shedding light on that matter, Kosmidou, Pasiouras, Doumpos, & Zopounidis (2006) argue that small banks are better than large banks in producing more performances. Interestingly, Katib and Mathews (2000) estimated the efficiency of 20 Malaysian commercial banks from 1989 to 2000 and found that medium-sized banks (total assets) are more efficient in comparison to large

banks. Surprisingly, Amene and Alemu (2019) found that larger banks enjoy better profits compared to smaller banks in the Ethiopian banking sector.

In addition to that, Micco et al. (2007) have conducted a study on commercial banks in Kenya with the application of the GMM method. The findings of the study revealed that size does not matter in determining bank performance. Similarly, Abduh and Idrees (2013) found a negative relationship between bank size and performance. On the contrary, Nafti et al. (2017) and Ruslan, Pahlevi, Alam, & Nohong (2019) found that bank size has a positive and significant effect on bank profitability through bank efficiency (a mediating effect). Fang, C. K. Lu, Tan, & Zhang (2019) conducted a study in Chania and found a relationship between the bank's size and performance.

As mentioned by Sufian (2011), the purpose of an M&A deal is to achieve economic scope rather than economic scale. M&As, according to Mustafa et al. (2017) and Piloff and Santomero (1998), reduce earning volatility and uncertainty through the scale and scope of economies. Whereas Focarelli, Panetta, & Salleo (2002) stated that acquisitions are made to improve the quality of the portfolio of acquired banks. In light of that, Linder and Crane (1993) mention that the acquirer banks can have economies of scale, i.e., by reducing manpower, shrinking operations, reducing cash as well as security and economies of scope, i.e., by a large volume of financing.

On the other hand, several studies have examined and revealed that M&A deals have less impact on the performance of the banking industry. Among the researchers are Kandil et al. (2014), Gattoufi et al. (2014), and Ismail, Abdou, & Annis (2011), who stated that M&As activities have no significant impact on the operational performance of the banks involved. In a similar vein, Goyal and Joshi (2011) and Piloff et al. (1998) argue that acquisitions often negatively impact employees' behavior, resulting in counterproductive practices, absenteeism, low morale, and job dissatisfaction. It appears that an important factor affecting the successful outcome of acquisitions is the top management's ability to gain employee trust (Amihud et al., 2002).

In addition, M&A activity contributes to an abnormal number of returns and negatively impacts profitability, efficiency, liquidity, leverage, size, and employees' behavior in the banking industry (Banal-Estanol and Ottaviani, 2007). According to the earliest studies by Firth (1980) and Malatesta (1983), the result has shown and unfolded that shareholder of the acquiring firm face a value reduction during the period of both the announcement and the following years of the merger.

On top of that, mixed results were also found in several studies. By using information from publicly listed companies from the ASEAN countries, Rao-Nicholson, Salaber & Cao (2016) found the negative effects of M&A deals on the performance of banks. Concerning domestic consolidation, they argue that friendly deals aid in the integration of the two companies, and managers can work proactively to derive synergistic gains from M&A activity. In the case of domestic deals, it can be quite

costly to integrate institutions that are dissimilar in terms of loans, earnings, cost, deposit, and size strategies. As for cross-border mergers, differences between merging partners in their loan and credit risk strategies are conducive to higher performance, whereas diversity in capital and cost structure has a negative impact from a performance standpoint [Antoniadis, Alexandridis, & Sariannidis (2014) and Altunbaş and Marqués (2008)].

Furthermore, using the data on Malaysian banks, Sufian and Habibullah (2014) and Jatkar (2012) explored and investigated the productivity of banks, acquiring banks having relatively more productivity when compared to the target banks. Malaysian financial sector consolidation can be traced back to the early 1990s when Bank Negara Malaysia (BNM) introduced a two-tier banking system to promote mergers among small domestic banking institutions. Moreover, Antoniadis et al. (2014) review and highlight the literature for M&As in the European banking sector and stated that there are positive abnormal returns for target banks due to investors' expectations for better utilization of their assets.

However, based on the above theoretical as well as empirical analysis, the impact of M&A on the operational performance of the Islamic banking sector is lacking, inconclusive, controversial, and mixed. It needs to be revised, re-examined and further efforts are required.

### **3.0 Research Methodology**

#### **3.1 Data Collection**

This paper uses an unbalanced panel data from 10 Islamic banks<sup>6</sup> in six countries<sup>7</sup> from the year 2004Q1 to 2020Q4. Data is collected from several secondary sources, including Bloomberg, FitchConnet database, financial statements of banks, IMF, and World Bank database. Panel data techniques, namely static models, i.e., fixed effect and random effect, and POLS, are used. Due to the smaller number of groups, GMM could not be applied. FE is known as the within estimator or least square dummy variable estimator, or covariance estimator. Fixed effects (FE) regression is used to control the omitted variables that differ between cases but are constant over time. Therefore, it is the benefit of FE to observe the effect of omitted independent variables on the dependent variable. It imposes equality of all slope coefficients and error variance across the variance, and only the intercept across units is allowed to vary.

On the other hand, the random effect (RE) model is the estimator if we believe that some omitted variables are constant over time and differ across the cases. Others may

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<sup>6</sup> Ithmaar Holding BSC, Al Salam Bank-Bahrain BSC, Warba Bank KSCP, Kuwait Finance House KSCP, Meezan Bank Ltd, Masraf Al Rayan QSC, Qatar International Islamic Bank QSC, Al Rajhi Bank, Dubai Islamic Bank PJSC, and Abu Dhabi Islamic Bank PJSC.

<sup>7</sup> Bahrain, Kuwait, Qatar, Saudi Arabia, United Arab Emirates and Pakistan

be fixed between ca Whitesesses and vary over time. It is a less restrictive estimator. It also imposes the equality of all slop coefficients but allows error variances and intercept to differ across countries. It assumes random intercepts, the mean of which is captured by the constant term and the variance of which is captured by the variance of the error term.

Several tests are used to select between POLS, FE, and RE. For example, the Chow test is used to choose between POLS and FE, the Lim test is used to choose between POLS and RE, and the Hausman test is used to choose between fixed effect and random effect.

### 3.2 Variables

The dependent variable is the Islamic bank's operational performance (ROA & ROE). There are several explanatory variables such as: focal variables; the 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 cost to income (economies of scale) and loan to deposit (economies of scope); and the non-financial intermediary role is measured by non-interest expense to non-interest income. Similarly, several control variables are applied, for example, liquidity ratio, capitalization ratio, and credit risk; macroeconomic variables, namely GDP and inflation; dummy variable cash to stock; and last but not least, market structure based on HHI and concentration ratio (CR3).

### 3.4 Model Specification

The following models have been designed for the analysis

#### Return on Asset (ROA) and return on equity (ROE)

##### Return on asset (ROA)

$$ROA_{nt} = \alpha_{nt} + \beta_1BSTA_{LMSnt} + \beta_2BSTD_{LMSnt} + \beta_3BSOI_{LMSnt} + \beta_4Escale_{nt} + \beta_5Escope_{nt} + \beta_6NFIR_{nt} + \beta_7LIDY_{nt} + \beta_8CAP_{nt} + \beta_9CR_{nt} + \beta_{10}GDP_{nt} + \beta_{11}INF_{nt} + \beta_{12}FIN_{nt} + MC\_LHHI_{nt} + MC\_CR3_{nt} + \epsilon_{nt} \dots\dots\dots (Eq 1)$$

##### Return on equity (ROE)

$$ROE_{nt} = \alpha_{nt} + \beta_1BSTA_{LMSnt} + \beta_2BSTD_{LMSnt} + \beta_3BSOI_{LMSnt} + \beta_4Escale_{nt} + \beta_5Escope_{nt} + \beta_6NFIR_{nt} + \beta_7LIDY_{nt} + \beta_8CAP_{nt} + \beta_9CR_{nt} + \beta_{10}GDP_{nt} + \beta_{11}INF_{nt} + \beta_{12}FIN_{nt} + MC\_LHHI_{nt} + MC\_CR3_{nt} + \epsilon_{nt} \dots\dots\dots (Eq 2)$$

Whereas,

- $\alpha$ ; constant term,
- $\beta$ ; coefficient
- ROA; return on asset,



ROE; return on equity,  
 BSTA<sub>LMS</sub>; bank size total assets; large, medium & small  
 BSTD<sub>LMS</sub>; bank size total deposits; large, medium & small  
 BSOI<sub>LMS</sub>; bank size-operating income; large, medium & 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,  
 FIN; modes of financing; cash or stock  
 MC\_LHHI; market structure based on Herfindahl-Hirschman Index  
 MC\_CR3; market structure based on concentration ratio and  
 $\mathcal{E}$ ; error term

#### 4.0 Results and Discussions

The descriptive statistics of the unbalanced panel data set for relevant variables are presented in Table 1. This illustrates some preliminary features of our data. As a result of the merger and acquisition, operational performance improved. In the table, three sets of the summary are reported, i.e., pre-merger operational performance, post-merger operational performance, respectively. At the same time, the correlation matrix is presented in Table 2. It shows that there is no problem with multicollinearity among the variables.

**Table 1 Descriptive Statistics**

	<b>Pre M&amp;A</b>	<b>Post-M&amp;A</b>
<b>Operational performance</b>		
ROA	1.017	1.681*
ROE	5.261*	5.723
<b>Bank size</b>		
BSTA	6.855*	6.587
BSTD	6.559	6.373
BSOI	5.161	4.565*
<b>Financial intermediary roles</b>		
Escale	38.492*	35.237
Escope	26.118	21.342
<b>Non-financial intermediary roles</b>		
NFIR	-111.591*	-94.727
<b>Control variables</b>		
LIDY	11.490*	8.672*
CR	2.157**	0.793
CAP	15.355	13.036
<b>Macro-economic variables</b>		
GDP	1.082*	2.956*
INF	1.699	1.385
<b>Modes of financing</b>		

FIN	0.789	0.793**
<b>Market structure</b>		
LHHI	3.521*	3.523
CR3	0.825	0.826
N	190	195

NOTES: 10 Islamic banks from 6 countries, year from Q1 2004 to Q4 2020. Pre; five years before M&A, Post; five years after M&A, 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, LHHI; the log of Herfindahl-Hirschman Index, CR3; concentration ratio of the largest 3 banks based on total assets, \*, \*\*, \*\*\*, represent significant at 1%, 5% and 10% level respectively.

**Table 2 Correlation Matrix of the Key Variables**

	ROA	ROE	BSA	BSOI	BSTD	BSL_A	BSM_A	BSS_A	BSL_OI	BSM_OI	BSS_OI	BSL_TD	BSM_TD	BSS_TD
ROA	1													
ROE	0.1876*	1												
BSA	0.0202	0.2599*	1											
BSOI	0.1263*	0.3325*	0.7486*	1										
BSTD	-0.0326	0.2250*	0.9266*	0.6915*	1									
BSL_A	0.017	0.0125	0.4490*	0.3294*	0.3649*	1								
BSM_A	0.1158*	0.1753*	-0.0802	-0.0293	-0.0636	-0.6753*	1							
BSS_A	-0.1517*	-0.2122*	-0.5038*	-0.4025*	-0.4111*	-0.5676*	-0.2240*	1						
BSL_OI	0.0973	0.0597	0.1088*	0.0583	0.0914	0.3545*	-0.0091	-0.4583*	1					
BSM_OI	0.0348	0.0952	0.2689*	0.2444*	0.2186*	0.3977*	-0.2685*	-0.2257*	-0.5494*	1				
BSS_OI	-0.1431*	-0.1568*	-0.3749*	-0.2946*	-0.3082*	-0.7749*	0.2610*	0.7325*	-0.6256*	-0.3082*	1			
BSL_TD	0.0132	0.0156	0.4341*	0.3257*	0.4403*	0.6762*	-0.4566*	-0.3838*	0.3867*	0.0896	-0.5240*	1		
BSM_TD	0.1000	0.1427*	-0.0641	-0.0299	-0.1394*	-0.2616*	0.6288*	-0.3562*	-0.0501	0.0774	-0.0152	-0.7261*	1	
BSS_TD	-0.1517*	-0.2122*	-0.5038*	-0.4025*	-0.4111*	-0.5676*	-0.2240*	1.0000*	-0.4583*	-0.2257*	0.7325*	-0.3838*	-0.3562*	1
Escale	-0.0877	-0.1174*	-0.1610*	-0.2426*	-0.1284*	-0.3660*	0.0798	0.4016*	-0.0969	-0.1620*	0.2647*	-0.2352*	-0.0537	0.4016*
Escope	-0.0884	-0.2444*	-0.0356	-0.1015	-0.0296	-0.2025*	0.0585	0.2117*	-0.0478	-0.1172*	0.1682*	-0.1747*	0.0291	0.2117*
NFIR	-0.0558	-0.0227	-0.116	-0.1362	-0.1263	-0.2789*	0.0755	0.3217*	-0.1846*	-0.0461	0.2853*	-0.2169*	0.0197	0.3217*
FIN	-0.1340*	-0.1616*	-0.0776	-0.0933	-0.1084*	0.1382*	-0.3705*	0.2310*	-0.5040*	0.2769*	0.3153*	-0.0718	-0.0993	0.2310*
LIDY	-0.0247	0.1672*	-0.1498*	-0.2028*	-0.1620*	-0.3166*	0.4278*	-0.106	0.2676*	-0.1792*	-0.1457*	-0.1885*	0.2485*	-0.106
CAP	0.0474	0.0427	-0.1450*	-0.1293*	-0.1240*	-0.4243*	0.2699*	0.2593*	0.0056	-0.1745*	0.1565*	-0.2941*	0.1045*	0.2593*
CR	0.0332	0.1849*	-0.0844	-0.1188*	-0.1085	-0.2701*	0.3964*	-0.1271*	0.2450*	-0.1228*	-0.1636*	-0.1707*	0.2564*	-0.1271*
GDP	-0.0219	0.0624	0.6164*	0.5098*	0.5870*	0.4784*	-0.3587*	-0.2348*	-0.1438*	0.3271*	-0.1327*	0.7081*	-0.5456*	-0.2348*
INF	-0.0899	-0.2457*	-0.6721*	-0.4373*	-0.6286*	-0.4384*	-0.0183	0.5877*	-0.1463*	-0.2429*	0.3857*	-0.4115*	-0.035	0.5877*
MC_LHHI	-0.0413	-0.1351*	-0.4486*	-0.3845*	-0.4320*	-0.3763*	0.0641	0.4256*	0.1936*	-0.5345*	0.2786*	-0.3986*	0.0864	0.4256*
MC_CR3	-0.0808	-0.1574*	-0.3149*	-0.2751*	-0.3310*	-0.3826*	0.072	0.4252*	-0.1750*	-0.3112*	0.4898*	-0.4413*	0.1299*	0.4252*

  

	Escale	Escope	NFIR	FIN	LIDY	CAP	CR	GDP	INF	MC_LHHI	MC_CR3
Escale	1										
Escope	0.6425*	1									
NFIR	0.1423*	0.4122*	1								
FIN	-0.063	0.0122	0.0414	1							
LIDY	0.5121*	0.0883	0.1954*	-0.4163*	1						
CAP	0.8165*	0.5658*	0.2825*	-0.2263*	0.4551*	1					
CR	0.4114*	0.2005*	0.4049*	-0.4129*	0.4378*	0.3729*	1				
GDP	-0.1623*	-0.0611	-0.1487*	0.1787*	-0.3787*	-0.2433*	-0.3436*	1			
INF	-0.1405*	-0.1028	0.0777	0.0245	0.0944	-0.1440*	0.0615	-0.4989*	1		
MC_LHHI	0.1831*	0.1439*	0.0763	0.3043*	0.1605*	0.2055*	0.1017	-0.4694*	0.4380*	1	
MC_CR3	0.0596	0.0912	0.051	0.5234*	-0.0553	0.0455	-0.0969	-0.1590*	0.3221*	0.8450*	1

NOTES: The samples consisted of ten Islamic banks involved in M&A from six countries from 2009 to 2018. ROA; return on asset, ROE; BSA; bank size-total assets, BSOI; bank size-operating income, BSTD; bank size total deposits, return on equity, BSL-A; large bank size based on total assets, BSM-A; medium bank size based on total assets, BSS-A; small bank size asset on total assets, BSL-OI; large bank size based on operating income, BSM-OI; medium bank assize based on operating income, BSS-OI; small bank size based on operating income, BSL-TD; large bank size based on total deposits, BSM-TD; medium bank size based on total deposits, BSS-TD; small bank size based on total deposits, Escale; economies of scale is measured by cost to income, Escope; economies of scope is measured by loan to deposit, NFIR; non-financial intermediary role is measured by non-interest cost to non-interest income, FIN; Dummy mode of financing (cash or stock), LIDY; liquidity ratio-liquid asset to total assets, CAP; capitalization ratio-total equity to total assets, CR; credit risk-loan loss reserve to gross loan, GDP; gross domestic product, INF; inflation, MC\_HHI; market concentration is measured based on Herfindahl-Hirschman Index, MC\_CR3; market concentration based on concentration ratio-largest three banks.

#### 4.1 Diagnostic Test

Multicollinearity, heteroscedasticity, and auto-correlation are tested for the accuracy of the data set and to avoid any bias in the estimation. Multicollinearity occurs when independent variables in a regression model are correlated. This correlation is a problem because independent variables should remain independent. If the degree of correlation between variables is high enough, it can cause problems. Heteroscedasticity implies a linear regression model and takes the assumption that the error terms are normally distributed. It tests whether the variance of the errors from regression is dependent on the values of the independent variables. Auto-correlation is a characteristic of data that shows the degree of similarity between the importance of the same variables over successive time intervals.

In conclusion, based on the diagnostic tests, it is shown that there is a problem of heteroscedasticity and auto-correlation while no multicollinearity problem exists. Table 4 summarizes the diagnostic test results.

**Table 3 Results of Diagnostic Tests**

Test	Test value	Decision role
Multicollinearity	Vif = 9.15	Since the value is less than 10, it shows no multicollinearity problem
Heteroskedasticity	chi2 (19) = 93.28, Prob>chi2 = 0.0000.	Since the p-value is less than 5per cent, unable to accept Ho hypothesis i.e., Heteroskedasticity problem exists
Auto-correlation	F(1, 17) = 3.903 Prob > F = 0.0956	Since the p-value is more than 5per cent, unable to reject Ho hypothesis, i.e., there is no problem of auto-correlation.

#### 4.2 Multivariate Results of M&A

Table 4 and Table 5 imply multivariate results of M&A. In specific, Table 4 shows pre-M&A results of operational performance (ROA) while Table 5 implies post-M&A results. Based on the test, fixed effect model is selected and discussed accordingly.

Table 4 Significant Results of Operational Performance (ROA) of Pre-M&A

	POLS (1)	POLS (2)	POLS (3)	FE (1)	FE (2)	FE (3)	RE (1)	RE (2)	RE (3)
BSTA_L	-0.425 (0.397)			-0.723* (0.093)			-0.836 (0.170)		
BSTA_M		-0.417 (0.160)			-0.330 (0.192)			-0.179 (0.621)	
BSTA_S			0.584* (0.052)			0.507* (0.076)			0.507** (0.056)
Escale	-0.011*** (0.000)	-0.013*** (0.000)	-0.013*** (0.000)	-0.013*** (0.000)	-0.013*** (0.000)	-0.011*** (0.001)	-0.011*** (0.001)	-0.012*** (0.001)	-0.011*** (0.001)
Escope	-0.004* (0.076)	-0.004** (0.043)	-0.005** (0.027)	-0.004* (0.066)	-0.004** (0.047)	-0.005*** (0.007)	-0.004** (0.014)	-0.005** (0.015)	-0.005*** (0.007)
NFIR	0.045 (0.812)	0.059 (0.976)	-0.018 (0.992)	-0.025** (0.005)	-0.043 (0.205)	-0.065** (0.019)	-0.033 (0.856)	-0.050 (0.783)	-0.065** (0.019)
LIDY	-0.099 (0.963)	0.056 (0.799)	0.074 (0.733)	0.049 (0.152)	0.058* (0.098)	0.085** (0.043)	0.027 (0.914)	0.056 (0.828)	0.085 (0.743)
CR	0.0146 (0.571)	0.0124 (0.630)	0.0104 (0.684)	-0.0118** (0.022)	-0.009** (0.029)	-0.006 (0.813)	-0.008 (0.747)	-0.008 (0.782)	-0.006** (0.013)
CAP	-0.002 (0.913)	0.008 (0.565)	0.009 (0.547)	-0.0145 (0.467)	-0.009 (0.589)	0.009*** (0.007)	-0.002 (0.925)	0.002 (0.905)	0.009 (0.607)
GDP	1.638** (0.037)	1.568** (0.045)	1.588** (0.041)	18.880 (0.284)	21.510** (0.017)	3.076* (0.067)	2.817 (0.198)	2.904 (0.185)	3.076 (0.167)
INF	0.149 (0.202)	0.123 (0.299)	0.0640 (0.610)	0.052*** (0.000)	0.058 (0.629)	0.090*** (0.005)	0.104 (0.437)	0.129 (0.334)	0.090*** (0.005)
MC_LHHI	2.817* (0.073)	2.481* (0.068)	1.723 (0.234)	(.) 0	(.) 0	1.426 (0.726)	2.470 (0.305)	2.348 (0.571)	1.426 (0.726)
MC_CR3	-7.342** (0.026)	-7.199** (0.012)	-5.667* (0.055)	0 (.)	0 (.)	-6.342 (0.457)	-7.126 (0.165)	-7.993 (0.360)	-6.342 (0.457)
_cons	-0.547 (0.552)	-0.362 (0.697)	-0.759 (0.406)	-18.070 (0.316)	-20.820 (0.294)	-2.290 (0.346)	-1.532 (0.517)	-1.715 (0.467)	-2.290 (0.346)
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	0.201	0.206	0.213						
R-sq within				0.121	0.118	0.127	0.102	0.093	0.100
R-sq between				0.11	0.094	0.082	0.427	0.428	0.437
R-sq overall				0.0676	0.0597	0.057	0.188	0.188	0.195
N	197	197	197	197	197	197	197	197	197
p-values in parentheses									
* p<0.1, **p<0.05, ***p<0.01									

NOTES: ROA; return on asset, BSA, BSOI & BSTA; bank sizes based on total assets, operating income & total deposits, large, medium & small; is the level of bank sizes, Escale; economies of scale is measured by cost to income, Escope; economies of scope is measured by loan to deposit, NFIR; the non-financial intermediary role is measured by the non-interest cost to non-interest income, FIN; Dummy mode of financing (cash or stock), LIDY; liquidity ratio-liquid asset to total assets, CAP; capitalization ratio-total equity to total assets, CR; credit risk-loan loss reserve to gross loan, GDP; gross domestic product, INF; inflation, MC\_HHI; market concentration is measured based on Herfindahl-Hirschman Index, MC\_CR3; market concentration based on concentration ratio-largest three banks.

Table 4 shows the operational performance of pre-M&A. In the pre-M&A scenario, 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, Gibson, & Tsakalotos (1997). Throughout the findings, it is shown that the levels of bank size (large, medium, and small) based on total assets have a comparative impact on the ROA. The results show that large banks (BSTA\_L) have 0.723 units less impact on the ROA than reference groups (BSTA\_L & BSTA\_S) that are statistically significant at 10% level (Model 1). At the same time, BSTA\_M shows the same impact but is not statistically significant (Model 2). Finally, BSTA\_S shows a 0.507 unit impact on ROA compared to the reference group (BSTA\_L & BSTA\_M), which is statistically significant at a 10% level (Model 3). Therefore, it concludes that BSTA\_S shows 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 from M&A in comparison to larger organizations, as they later may pose greater challenges for management. Furthermore, the findings are supported by the resource dependency theory, which says that resources significantly impact the organization's outcome.

Based on the results, it shows that intermediary bank roles (financial and non-financial) have a significant impact on the pre-M&As of the banking sectors. The findings show that (Model 3), financial and non-financial intermediary roles show negative and statistically significant impacts on operational performance. Pointing to the results, for every 1-unit increase (decrease), Escalate and Escalate 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 a significantly negative effect on ROA. Likewise, the non-financial intermediary role (NFIR) is negatively associated with ROA. Looking at the findings, 1-unit increases (decreases) to NFIR would tend to decrease (increase) ROA by 0.065 units, which is significant at a 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.

#### **Effects of the control variables (i.e., bank-specific and macro-economic variables)**

Liquidity (LIDY) and capitalization (CAP) show a positive impact on ROA. This means that a one-unit increase in LIDY and CAP would increase ROA by 0.085 and 0.009 units, respectively, which is statistically significant at the 5% and 1% levels. The finding of liquidity is inconsistent with Brown (2014), who found that liquidity does not significantly impact ROA. Although the coefficient of credit risk is negative, it is not statistically significant. On the other hand, macro-economic variables also show a significant and positive impact on operational performance. Diaconu & Oanea (2015) stated that banks' internal determinants

greatly impact bank stability, which means that a unit increase in 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.



Table 5 Significant Results of Operational Performance (ROA) of Post-M&A

	POLS (1)	POLS (2)	POLS (3)	FE (1)	FE (2)	FE (3)	RE (1)	RE (2)	RE (3)
BSTA_L	-0.127 (0.307)			1.926 (0.235)			-0.234 (0.266)		
BSTA_M		-0.0575 (0.681)			-2.355*** (0.000)			-0.533*** (0.005)	
BSTA_S			0.875*** (0.002)			1.475*** (0.000)			1.475*** (0.000)
Escale	-0.075** (0.010)	-0.076*** (0.010)	-0.077*** (0.007)	0.073** (0.030)	-0.079** (0.027)	-0.019* (0.068)	0.039 (0.248)	0.034 (0.322)	-0.019 (0.568)
Escope	0.012*** (0.000)	0.012*** (0.000)	0.010*** (0.000)	-0.039*** (0.000)	-0.012*** (0.000)	0.014*** (0.003)	0.0412* (0.055)	0.051** (0.013)	0.014 (0.483)
NFIR	0.018* (0.067)	0.019* (0.052)	-0.001 (0.392)	0.006*** (0.000)	-0.094 (0.353)	-0.076** (0.024)	0.004*** (0.000)	0.024** (0.023)	-0.076 (0.524)
LIDY	-0.013 (0.343)	-0.040 (0.777)	-0.045 (0.711)	0.055 (0.816)	0.024 (0.153)	0.057 (0.651)	-0.069 (0.610)	0.078 (0.563)	0.057 (0.651)
CR	0.076*** (0.006)	0.077*** (0.006)	0.055* (0.052)	0.078*** (0.009)	0.021 (0.424)	0.041** (0.019)	0.074*** (0.007)	0.075*** (0.005)	0.041 (0.119)
CAP	0.020* (0.058)	0.017 (0.101)	0.029*** (0.006)	0.010*** (0.007)	-0.0279 (0.464)	0.042*** (0.005)	0.031** (0.043)	0.025 (0.108)	0.042*** (0.005)
GDP	-0.145*** (0.000)	-0.149*** (0.000)	-0.166*** (0.000)	0.792* (0.060)	0.843*** (0.000)	-0.043 (0.399)	0.005 (0.913)	0.084 (0.112)	-0.043 (0.399)
INF	0.0910 (0.242)	0.133* (0.075)	0.034 (0.650)	-0.036*** (0.005)	-0.231** (0.048)	-0.176** (0.020)	-0.0636 (0.428)	-0.0360 (0.636)	-0.176** (0.020)
FIN	0.043*** (0.002)	0.055*** (0.007)	0.046* (0.067)	0 (.)	0 (.)	0.023*** (0.004)	0.074** (0.046)	0.092** (0.017)	0.023*** (0.004)
MC_LHHI	-1.346*** (0.000)	-1.469*** (0.000)	-1.633*** (0.000)	0 (.)	0 (.)	-1.426** (0.011)	-0.999* (0.057)	-1.292** (0.030)	-1.426** (0.011)
MC_CR3	-0.0819 (0.865)	-0.00803 (0.987)	-0.151 (0.729)	0 (.)	0 (.)	-0.729 (0.402)	-0.497 (0.542)	-0.616 (0.502)	-0.729 (0.402)
_cons	0.853*** (0.000)	0.813*** (0.000)	0.250 (0.370)	-1.838 (0.399)	0.0416 (0.931)	-0.215 (0.468)	0.440 (0.184)	0.130 (0.667)	-0.215 (0.468)
Chow test:POLS vs FE	0.000	0.000	0.000						
LIM test:POLS vs RE	1.000	1.000	1.000						
Hausman: FE vs RE	0.000	0.000	0.000						
R-sq	0.658	0.655	0.672						
R-sq within				0.645	0.752	0.751	0.611	0.635	0.678
R-sq between				0.014	0.002	0.012	0.669	0.554	0.570
R-sq overall				0.066	0.023	0.043	0.599	0.518	0.587
N	197	197	197	197	197	197	197	197	197
p-values in parentheses									
* p<0.1, **p<0.05, ***p<0.01									

NOTES: ROA; return o asset, BSA, BSOI & BSTA; bank sizes based on total assets, operating income & total deposits, large, medium & small; is the level of bank sizes, Escale; economies of scale is measured by cost to income, Escope; economies of scope is measured by loan to deposit, NFIR; the non-financial intermediary role is measured by the non-interest cost to non-interest income, FIN; Dummy mode of financing (cash or stock), LIDY; liquidity ratio-liquid asset to total assets, CAP; capitalization ratio-total equity to total assets, CR; credit risk-loan loss reserve to gross loan, GDP; gross domestic product, INF; inflation, MC\_HHI; market concentration is measured based on Herfindahl-Hirschman Index, MC\_CR3; market concentration based on concentration ratio-largest three banks.

Table 5 depicts the post-M & A operational performance of Islamic banks. IN the post-M&As scenario, R-squared (within) is 0.751 meaning that ROA is the variance explained by the explanatory variables. Size can influence post-acquisition performance (Dickerson et al., 1997). The levels of bank size (large, medium, and small) significantly impact 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 a positive impact on operational performance. In other words, the operational performance of the banking sector is 1.475 units more compared to the reference groups (large and medium), which is significant at 1% level.

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

Intermediary roles (both financial and non-financial) show significant impact as well. When a unit increase (decrease) in the financial intermediary role (economies of scale) reduces operational performance by 0.019 units, which is significant at a 10% level. The finding is consistent with Jaouad & Lahsen (2018) and Brown (2014), who showed that the 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 have the possibility of minimizing costs and benefiting from economies of scale. A unit increase in 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 is negatively associated with operational performance. A unit increase in the non-financial intermediary role enables them to increase operational performance by 0.076, significant at a 5% level. The impact is 0.011 units more compared to pre-M&As.

Modes of financing have a significant impact on mergers and acquisitions. Looking at that, M&As financing by cash impacts operational by 0.023 units more than stock financing. Kwenda, Oyetade, & Dobрева (2017) said that in post-M&As, acquirers' performance is also influenced by modes of financing. The results are consistent with Bertrand and Betschinger (2012), who mentioned that the financing method positively impacts performance. Accordingly, Dogru, Kizildag, Ozdemir, & Erdogan, (2020) said that the acquirer's performance is lower due to the higher free cash flow. Furthermore, the finding is the opposite of the free cash flow hypothesis, which mentions that M&As performance is lower due to the conflict between managers and shareholders choosing an M&As strategy. Lang, Stulz, & Walkling (1991) observed that the free cash flow hypothesis posits that cash flow increases the agency costs of firms with poor investment opportunities.

### **Effects of the control variables (i.e., bank-specific and macro-economic variables)**

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, as well as macro-economic variables, namely GDP and inflation. Credit risk and capitalization show the positive impact on operational performance. In other words, a unit increase in credit risk and capitalization would increase operational performance by 0.041 units and 0.042 units, which is statistically significant at 5% and 1% levels, respectively. The coefficient of liquidity is not statistically significant in explaining the changes in ROA, and 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 a significant and positive impact on operational performance. In particular, a unit decrease in inflation would decrease operational performance by 0.176 units, which is significant at a 5% level. While GDP has no significant impact on explaining the relationship between mergers and acquisitions and operational performance.

## **5.0 Conclusion and Recommendation**

This paper investigates and analyses the impact of M&A on an Islamic bank's operational performance. Based on the results, the ROA indicator shows more significant results than the ROE indicator. The post-M&A period is better compared to the pre-M&A period. According to the findings, M&A improves the operational performance of Islamic banks. Bank size plays an essential role in shaping M&A activities in the Islamic banking sector. Levels of bank size, i.e., large banks, show a significant positive effect on the relationship between M&A and operational performance. Based on the findings, it is concluded that small-sized banks (compared to large and medium-sized banks) have better operational performance than large and medium-sized banks. These results further support that M&A is better and the potential for an Islamic bank to increase its size and stay above the level of being too small to succeed. Market structure (LHHI) has a positive impact on pre-M&A operational performance but a negative impact on post-M&A operational performance. Other variables, namely control variables, macro-economic variables, and the country's market structure, have a significant impact in explaining the relationship between M&A and the operational performance of the Islamic bank. As a result, the findings provide policymakers and academics with useful information for M&A decisions and future research.

The number of observations in this study has become a limitation. Future research should consider the availability of data for Islamic banks by considering the data availability for Islamic banks.

## References

- Abbas, Q., Hunjra, A. I., Azam, R. I., Ijaz, M. S., & Zahid, M. (2014). Financial performance of banks in Pakistan after Mergers and acquisitions. *Journal of Global Entrepreneurship Research*, 4(1), 13.
- Abduh. & Yameen, I. (2013). Determinants of Islamic banking profitability in Malaysia. *Australian Journal of Basic and Applied Sciences* 7(2): 204-210.
- Aladwan, M. S. (2015). The impact of bank size on profitability" an empirical study on listed Jordanian commercial banks". *European Scientific Journal*, 11(34), 218-220.
- Al-Muharrami, S., & Matthews, K. (2009). Market power versus efficient-structure in Arab GCC banking. *Applied Financial Economics*, 19(18), 1487-1496.
- Al-Sharkas, A. A., Hassan, M. K., & Lawrence, S. (2008). The impact of mergers and acquisitions on the efficiency of the US banking industry: further evidence. *Journal of Business Finance & Accounting*, 35(1-2), 50-70.
- Altunbaş, Y., & Marqués, D. (2008). Mergers and acquisitions and bank performance in Europe: The role of strategic similarities. *Journal of economics and business*, 60(3), 204-222.
- Amene, T. B., & Alemu, G. A. (2019). Determinants of financial performance in private banks: A case in Ethiopia. *African Journal of Business Management*, 13(9), 291-308.
- Amihud, Y., DeLong, G. L., & Saunders, A. (2002). The effects of cross-border bank mergers on bank risk and value. *Journal of International Money and Finance*, 21(6), 857-877.
- Antoniadis, I., Alexandridis, A., & Sariannidis, N. (2014). Mergers and acquisitions in the Greek banking sector: An event study of a proposal. *Procedia Economics and Finance*, 14, 13-22
- Banal-Estañol, A., & Ottaviani, M. (2007). Bank mergers and diversification: implications for competition policy. *European Financial Management*, 13(3), 578-590.
- Barra, C., & Zotti, R. (2019). Bank Performance, Financial Stability And Market Concentration: Evidence From Cooperative And Non-Cooperative Banks. *Annals of Public and Cooperative Economics*, 90(1), 103-139.
- Bertrand, O., & Betschinger, M. A. (2012). Performance of domestic and cross-border acquisitions: Empirical evidence from Russian acquirers. *Journal of comparative economics*, 40(3), 413-437.
- Bikker, J.A. & Haaf, K. 2002. Measures of competition and concentration in the banking industry: A review of the literature. *Economic and Financial Modelling* 9: 53-98.
- Brown, F. R. (2014). *Determinants of selected banks' performance in the pre and post merger period: The case of Nigeria* (Doctoral dissertation, Eastern Mediterranean University (EMU)-Doğu Akdeniz Üniversitesi (DAÜ)).

- Daniya, A. A., Onotu, S., & Abdulrahaman, Y. (2016). Impact of Merger and Acquisitions on the Financial Performance of Deposit Money Banks in Nigeria. *Arabian Journal of Business and Management Review*, 6(4), 1-5.
- Diaconu, I. R., & Oanea, D. C. (2015). Determinants of Bank's Stability. Evidence from CreditCoop. *Procedia Economics and Finance*, 32, 488-495.
- Dickerson, A. P., Gibson, H. D., & Tsakalotos, E. (1997). The impact of acquisitions on company performance: Evidence from a large panel of UK firms. *Oxford economic papers*, 49(3), 344-361.
- Dogru, T., Kizildag, M., Ozdemir, O., & Erdogan, A. (2020). Acquisitions and shareholders' returns in restaurant firms: The effects of free cash flow, growth opportunities, and franchising. *International Journal of Hospitality Management*, 84, 102327.
- Fang, J., Lau, C. K. M., Lu, Z., Tan, Y., & Zhang, H. (2019). Bank performance in China: A Perspective from Bank efficiency, risk-taking and market competition. *Pacific-Basin Finance Journal*, 56, 290-309.
- Firth, M. (1980). Takeovers, shareholder returns, and the theory of the firm. *The Quarterly Journal of Economics*, 94(2), 235-260.
- Focarelli, D., Panetta, F., & Salleo, C. (2002). Why do banks merge?. *Journal of money, credit and banking*, 1047-1066.
- Galetić, F., & Obradović, T. (2018). Measuring Concentration of the Banking Market of the Republic of Croatia. In 6th International OFEL Conference on Governance, Management and Entrepreneurship. New Business Models and Institutional Entrepreneurs: Leading Disruptive Change. April 13th-14th, 2018, Dubrovnik, Croatia (pp. 598-625). Zagreb: Governance Research and Development Centre (CIRU).
- Gattoufi, S., Al-Muharrami, S., & Shamas, G. (2014). Assessment of mergers and acquisitions in GCC banking. *International Journal of Accounting and Finance*, 4(4), 358-377.
- Ginevičius, R., & Čirba, S. (2007). Determining market concentration. *Journal of Business Economics and Management*, 8(1), 3-10
- Goyal, K. A., & Joshi, V. (2011). Mergers in Banking Industry of India: Some Emerging Issues. *Asian Journal of Business and Management Sciences*, 1(2), 157-165.
- Haron, S. (2004). Determinants of Islamic bank profitability. *Global Journal of Finance and Economics*, 1(1), 11-33.
- Ibrahim, M. H., & Rizvi, S. A. R. (2017). Do we need bigger Islamic banks? An assessment of bank stability. *Journal of Multinational Financial Management*, 40, 77-91.
- Iqbal, Z. (2008). The Impact of Consolidation On the Islamic Financial Services Industry. *Islamic Economic Studies*, 15(2), 80.

- Ismail, T. H., Abdou, A. A., & Annis, R. M. (2011). Exploring Improvements of Post-Merger Corporate Performance: The Case of Egypt. *IUP Journal of Business Strategy*, 8(1).
- Jaouad, Lahsan (2018) Factors Affecting Bank Performance: Empirical Evidence from Morocco. *European Scientific Journal* December 2018 edition Vol.14, No.34 ISSN: 1857 – 7881 (Print) e - ISSN 1857- 7431
- Jatkar, K. (2012). Need for Mergers and Acquisitions in the Banking Industry of India. *IBMRD's Journal of Management & Research*, 1(1), 64-69.
- Kandil, T., & Chowdhury, D. (2014). Islamic Banks' Mergers and Acquisitions—Impacts on Performance and Financial Crisis in the United Kingdom. *The Developing Role of Islamic Banking and Finance: From Local to Global Perspectives* (pp. 119-140). Emerald Group Publishing Limited.
- Katib, M. N. (2004, December). Market structure and performance in the Malaysian banking industry: a robust estimation. In 8th Capital Markets Conference, Indian Institute of Capital Markets Paper.
- Katib, M. N., & Mathews, K. (2000). A non-parametric approach to efficiency measurement in the Malaysian banking sector. *The Singapore Economic Review*, 44(2), 89-114.
- Kosmidou, K., Pasiouras, F., Doumpos, M., & Zopounidis, C. (2006). Assessing performance factors in the UK banking sector: a multicriteria methodology. *Central European Journal of Operations Research*, 14(1), 25-44
- Kwenda, F., Oyetade, D., & Dobрева, R. (2017). Factors affecting the long-term post-acquisition performance of BRICS firms engaging in cross-border mergers and acquisitions. *Acta Universitatis Danubius. Œconomica*, 13(2).
- Lang, L. H., Stulz, R., & Walkling, R. A. (1991). A test of the free cash flow hypothesis: The case of bidder returns. *Journal of Financial Economics*, 29(2), 315-335.
- Linder, J. C., & Crane, D. B. (1993). Bank mergers: integration and profitability. *Journal of Financial Services Research*, 7(1), 35-55.
- Malatesta, P. H. (1983). The wealth effect of merger activity and the objective functions of merging firms. *Journal of financial economics*, 11(1-4), 155-181.
- Massoudi, A. & Fontanella-Khan, J. (2016, December 30). M&A boom set to continue in 2017. *Financial Times*, Retrieved from <https://www.ft.com>
- Micco, A., Panizza, U., & Yanez, M. (2007). Bank ownership and performance. Does politics matter?. *Journal of Banking & Finance*, 31(1), 219-241.
- Muhammad, H., Waqas, M., & Migliori, S. (2019). The impact of M&A on bank's financial performance: Evidence from emerging economy. *Corporate Ownership & Control*, 16(3), 52-63.
- Mustafa, G., Saleem, S., Fatima, S., & Ain, N. U. Impact Of Acquisition And Merger On The Financial Institutions Of Pakistan.

- Nafti, O., Boumediene, S. L., Khouaja, S., & Ayed, W. B. (2017). The Determinants Of World Islamic Banks Efficiency: Empirical Analysis Using A Non Parametric Approach. *Journal of Applied Business Research*, 33(2), 363.
- Nair, A., Trendowski, J., & Judge, W. (2008). [Review of the book *The Theory of the Growth of the Firm*, by Edith T. Penrose. Oxford: Blackwell].
- Nurwati, E., Achsani, N. A., Hafidhuddin, D., & Nuryartono, N. (2014). Market Structure and Bank Performance: Empirical Evidence of Islamic Banking in Indonesia. *Asian Social Science*, 10(10), 105.
- Piloff, S. J., & Santomero, A. M. (1998). The value effects of bank mergers and acquisitions. In *Bank Mergers & Acquisitions* (pp. 59-78). Springer US.
- Rao-Nicholson, R., Salaber, J., & Cao, T. H. (2016). Long-term performance of mergers and acquisitions in ASEAN countries. *Research in International Business and Finance*, 36, 373-387
- Ruslan, A., Pahlevi, C., Alam, S., & Nohong, M. (2019). The role of efficiency mediation in the effect of banks size on bank profitability in Indonesia. *Hasanuddin Economics and Business Review*, 3(1), 49-58.
- Samad, A. (2008). Market structure, conduct and performance: Evidence from the Bangladesh banking industry. *Journal of Asian Economics*, 19(2), 181-193.
- Sufian, F. (2011). Benchmarking the efficiency of the Korean banking sector: a DEA approach. *Benchmarking: An International Journal*, 18(1), 107-127.
- Sufian, F., & Habibullah, M. S. (2014). The impact of forced mergers and acquisitions on banks' total factor productivity: empirical evidence from Malaysia. *Journal of the Asia Pacific Economy*, 19(1), 151-185
- Weitzel, U., & McCarthy, K. J. (2011). Theory and evidence on mergers and acquisitions by small and medium enterprises. *International Journal of Entrepreneurship and Innovation Management*, 14(2-3), 248-275.



