PRIMARY RESEARCH

The Asset and Liabilities Gap Management of Conventional and Islamic Banks: An Empirical Study of Pakistan, UAE, Malaysia, and Bahrain

Ahmed Imran Hunjra [1]*, **Farida Faisal** [2], **Zain-ul-Abdeen** [3], **Azfar Kamal** [4], **Muhammad Ghufran** [5], **Aamir Bashir** [6]

[1] Post-Doctoral Fellow, School of Accounting, Finance and Economics, The University of Waikato, Hamilton, New Zealand

[1] Assistant Professor, University Institute of Management Sciences-PMAS-University of Arid Agriculture, Rawalpindi, Pakistan

[2] Associate Professor & Director at University Institute of Management Sciences-PMAS-Arid Agriculture University, Rawalpindi, Pakistan

[3, 4, 5, 6] MBA Students at University Institute of Management Sciences, PMAS-Arid Agriculture University, Rawalpindi, Pakistan

Abstract. The purpose of this study is to determine the Gap between the assets and the liabilities of Islamic and conventional banks. It also finds the impact of liquidity risk, capital adequacy, management efficiency, operating cost, and transaction size on net interest margin for Conventional Banks (CBs) and net profit margin for Islamic Banks (IBs) in Pakistan, Malaysia, Bahrain, and UAE. Short-term and long-term assets and liabilities gap is further emphasized in this study. Data were extracted from the financial statements of both types of banks for the period of 2008-2014. This study finds that there is a negative short-term gap for both types of banks while the long-term gap for both types of banks is positive. Results show that the operating cost is an important factor which affects the profit margins and progress quality of the management of banks. Finally, the overall results show that the CBs have better assets and liabilities structure of profitable assets at low cost liabilities.

KAUJIE Classification: I31, L32
JEL Classification: E44, G21, G32

INTRODUCTION

Assets and Liabilities Management (ALM) involves arranging, forming, matching, and governing the assets and liabilities along with their combinations, sizes, life (maturities), revenues, and cost so as to attain a definite Net Interest Margin or Net Profit Margin (NIM/NPM). It is both a risk management tool as well as a profit-making instrument. The significance

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*Corresponding author: Ahmed Imran Hunjra
†Email: ahmedhunjra@gmail.com

of ALM lies in reducing and managing risk in such a way that a suitable equilibrium exists among profitability, growth, and risk. In the framework of ALM, the target of the banks is to expand net interest/profit margin for a certain amount of risk and to reduce certain risk for a marked amount of Net Interest Income. Given the hyper competitive environment in the banking sector, ALM gives the adopting institution an edge over its rivals (DeMasi, 2008).

Several major financial crises in the banking sector like Banking Crises of 1980s (Bodie, 2006), the crisis of currency exchange and maturity in late 1990's in countries of South Asia (Hirose, Murakami, & Oku, 2004), and the international financial crisis in 2007 (DeMasi, 2005; Poole, 2009) were aggravated due to mismatch between assets and liabilities. To address this issue, it is necessary to first apply sound accounting practices and then to optimize assets and liabilities. ALM is the skill of matching assets and liabilities in terms of maturity profiles and spread, leading to a holistic and cohesive management of the whole balance sheet for avoidance of financial indiscipline in the firm and financial crises in the economy.

Islamic and Conventional banking systems can be strengthened if firms control the exposure to risk while also balancing their assets and liabilities. Particularly considering the Muslim countries having dual banking systems like Pakistan, U.A.E, Bahrain, and Malaysia, the researches regarding the impact of ALM on bank's profitability are very few and it is the need of the hour to conduct more researches. In today's world, globalization, liberalization, and information technology advancements have made ALM an imperative for the financial sector. The factors like unregulated environment, fluctuations in the markets, stringent customer demand, and high degree of competition among banks across the globe have increased the risk exposure of banks. Despite of these pressures, banks need to balance maturity profiles of assets and liabilities, so as to maximize profitability and avoid undesirable risks like liquidity risk, interest rate risk, transaction risk, and others.

The objective of this study is to find out the extent to which liquidity risk and the related factors like capital adequacy, management efficiency, operating cost, and transactions size affect the NIMs/NPMs of conventional and IBs in Pakistan, Malaysia, Bahrain, and UAE. Furthermore, this study captures the ALM gap among Islamic and CBs in the aforementioned four countries to facilitate the effective use of existing funds and appropriate ALM management.

The remaining parts of the paper are structured as follows: brief literature is provided in Section 2, followed by data and methodology presented in Section 3. Section 4 provides the results and discussion, while Section 5 concludes the paper with insights for further studies.

LITERATURE REVIEW

Meena and Dhar (2014) defined ALM as a method for liability adjustment to encounter advance cash requests, liquidity requirements, and safety necessities. ALM allows a financial institution to bring about ideal value by managing different forms of risk within adequate levels. Meena and Dhar (2014) conducted their research in India on three banks one each from public, private, & foreign sectors. The investigation was based on the liquidity proportions' calculations and the determination of maturity gap profiles for the banks under

study. It was established that the position of short-term liquidity in Indian banks was ideal when banks were meeting their short-term liabilities by using their long-term assets. Baser's (2014) proved that ALM must be a comprehensive and dynamic process for the purpose of assessing, checking, and dealing with the market risk facing a bank. The study brings forth the different viewpoints of financial institutions in recognizing and confronting the risks and adjusting Asset Quality by using various ALM methods. A goal programming structure was suggested by Giokas and Vassiloglou (1991) for ALM by the banks. They argued that to reduce risks, bank's capital allocation should satisfy different objectives such as holding the market share of other banks, expanding the size of its deposits and advances, etc.

A linear model of asset and liability management is proposed by Dash and Pathak (2011). Their findings suggested that public sector banks had an optimum level of ALM positions in sustaining profitability, managing interest rate, and handling liquidity restraints. Prathap (2013) found a strong impact of ownership and structure of the banks on the ALM procedures that the bank follows. For example, the majority of public sector banks in India borrow from money market to manage liability, which is not the case with regard to foreign banks. There are several studies pertaining to inter-bank differences in asset retention and adequate liquidity modeling (Chakraborty & Mohapatra, 2009; Langen, 1989). In Islamic Banks, customer preference leads to the funds having different ending time periods (Sandhu, 2005). The mismatch among ALM at a specific point of time is measured by Vij (2005) who indicated the gap by using the liquidity profiles of banks with the help of inflows and outflows of funds. Vij found that a mechanism of re-pricing can be devised with movements in interest rates.

Studies have also examined ALM and its relationship with the performance of banks related to low operating cost and high interest margins. Ho and Saunders (1981) concluded that earning of banks through spread was more than 56% of total/actual earning. Allen (1988) held that for the purpose of portfolio diversification, bank margins may be used as a baseline. Wong (1997) added the concept of operating costs in the model and indicated that net interest margins are increased by the replacement effect of operating costs. Further, Maudos and Guevara (2004) established that operating cost is an unambiguous factor of NIMs and direct measurement of market power. The findings of Hawtrey and Liang (2008) and Williams (2007) were same as the findings of Maudos and Guevara (2004), though the former two also established that market power, operational cost, liquidity risk, credit risk, implicit interest payments, opportunity cost, and efficiency/quality of management all were directly linked to NIMs.

Many studies have established that the stock market reacts to changes in interest rates (Fama, 1990; Fama & French, 1989). However, there are some complexities in the case of banks' stocks because the banks are dealing in the business of getting and disbursing money, so they are considered more sensitive to changes in interest rate as compared to non-financial institutions (Flannery & James, 1984; Lynge & Zumwalt, 1980). Hawtrey and Liang (2008) held that management efficiency has a substantial effect on the NIMs. Therefore, banks invest in the assets that are liquid and highly profitable. Hanweck and Ryu (2005) developed a differential model of bank's behavior through which they found that when interest rates are

altered, every bank responds differently to the credit, interest rate, and term structure shocks with respect to their transaction size. Chawla (1998) opined that ALM has advanced from the early practice of overseeing liquidity on the asset side of banks to liability management, for utilizing both the assets as well as liabilities sides to attain optimal assets management.

Along with conventional banking, scholars also examined the impact of financial determinants on the productivity of IBs (Ramadan, 2011). However, most studies have considered only internal factors to determine the performance of IBs. Banks' profitability is directly related to the size of bank, but managerial efficiency is inversely affected by the profitability (Papadogonas, 2007). Haron (2004) conducted a study on the elements which determine the profitability of IBs and found that the profitability is greatly affected by the external factors like interest rates, market share, and market size. Furthermore, some internal factors are also highly related to the IBs' profitability which includes liquidity, expenses of bank, and funds that are invested in Islamic securities, and percentage of the profit-sharing ratio with depositors. Hassan and Bashir (2003) found a direct and significant relationship between the capital adequacy, loan activity ratio, and IBs' profitability.

Idris et al. (2011) conducted a study to find out the factors which determine the performance of IBs in Malaysia. Internal factors considered to determine the impact on banks' profitability included capital adequacy, liquidity risk, bank's transaction size, and management quality. The study found only one factor which greatly affected profitability of IBs in Malaysia and that is the size of banks. Haron (1996) found that in addition to capital adequacy, liquidity, and expenses management, three areas including current deposits, saving deposits, and investments greatly affect IBs' profitability. Bashir (2003) examined the effect of internal as well as external variables on the working of Islamic banking system in Middle East region. This study found a direct and significant association between capital and IBs' profitability. There is an inverse association between expenses and profitability of banks. If expenses management is poor, profitability of the banks will decrease (Kosmidou, 2008). Sufian and Parman (2009) suggested that with reduction in the expenses, efficiency improves and profits increase. This means that there is a negative link between expenses and profitability.

General Form of the Regression Equation
General Form of the Regression Equation is as Follows:

Net Interest Margin/Net Profit Margin = Function of (Capital Adequacy, Liquidity Risk, Management Efficiency, Operating Cost, Transaction Size).

Therefore, the Specified Models are:

For Conventional Banks

$$(NIM)_{i,t} = \alpha + \beta 1(CA)_{i,t} + \beta 2(LR)_{i,t} + \beta 3(ME)_{i,t} + \beta 4(OC)_{i,t} + \beta 5(TS)_{i,t} + \mu \qquad (1)$$

For Islamic Banks

$$(NPM)_{i,t} = \alpha + \beta 1(CA)_{i,t} + \beta 2(LR)_{i,t} + \beta 3(ME)_{i,t} + \beta 4(OC)_{i,t} + \beta 5(TS)_{i,t} + \mu \quad (2)$$

Where, α = Constant; CA = Capital Adequacy; LR = Liquidity Risk; ME = Management Efficiency; OC= Operating Cost; TS = Transaction Size; μ = Error Term

The hypotheses statements are:

H1: There is a significant impact of capital adequacy on NIMs/NPMs.
H2: There is a significant impact of liquidity risk on NIMs/NPMs.
H3: There is a significant impact of management efficiency on NIMs/NPMs.
H4: There is a significant impact of operating cost on NIM and NPM.
H5: There is a significant impact of transaction size on NIMs/NPMs.

METHODOLOGY

This study used secondary data which were extracted from annual financial statements of top-ranked four commercial and IBs operating in Pakistan, Malaysia, UAE and Bahrain. The data were taken for the periods of seven years 2008-2014. Annual reports were acquired from every bank's respective websites. We used panel data estimation because it is most convenient for these data. Descriptive statistics were used to check the normality and characteristics of data. There are three types of model of panel data namely common effect model, fixed effect model, and random effect model. In common effect model, alpha (α) is constant for all cross-sections whereas in fixed effect model alpha (α) is constant for each cross-section of data and random effect model has no proper pattern for cross-sections. Redundant fixed effect (Likelihood ratio) is used to check which model is applicable from common and fixed models. Hausman test is used to check the application of fixed and random tests. Hausman test suggests that the coefficients estimated by the random effect estimator are the same as the ones estimated by the consistent fixed effects estimator. Random effect models are used in the analysis of panel data when there are no fixed effects. This study used the random and fixed effect models based on the result of Hausman test.

Sun, Hassan, Hassan, and Ramadilli (2014) conducted their research in Organization of Islamic Cooperation (OIC) countries. The sample size were 65 CBs and 36 IBs in three areas of OIC countries. They took the data from the annual reports of the banks and studied variables including capital adequacy, asset quality, management efficiency, liquidity risk, operating costs, and size and Net Interest Margins/Net Profit Margins for CBs and IBs. They used Generalized Least Square (GLS) technique, with fixed effect models. Maudos and Solis (2009) used pooled Ordinary Least Squares (OLS), Weighted Least Squares (WLS), GLS techniques and panel data technique to measure the impact of bank-specific variables on Net Interest Margin of CBs and Net Profit Margins of IBs.

There is a likelihood of positive relationship between liquidity risk and bank margins. If the level of cash or deposits in the banks is low, they will be facing higher liquidity risk. The cost of obtaining loan from other financial institutions and from money market will also be higher when there is low level of cash or deposits in the banks. So, the banks will

need higher margins (net interest margins for conventional banking and net profit margins for Islamic banking) to cover the increased liquidity risk and to compensate the increased costs of obtaining the loan (Angbazo, 1997, Doliente, 2005, Valverde & Fernandez, 2007). Operating costs are interrelated with transaction size in financial institutions like banks. It is believed that if the operating cost is higher, there will be higher bank margins (net interest margins for conventional banking and net profit margins for Islamic banking). When the transaction size of banks is higher, or a large number of banking activities take place in banks, they could need to set greater net interest margins in conventional banking and net profit margins in Islamic banking to compensate the higher operating costs (Brock & Suarez, 2000; Kasman, Tunc, Vardar, & Okan, 2010; Maudos & De Guevara, 2004; Maudos & Solís, 2009; Wong, 1997). The net interest margin, normally defined as "the difference between interest income minus interest expense per dollar of assets, delivers vibrant information about the proficiency of the banks" (Demirgüç-Kunt & Huizinga, 1999). Net profit margin is defined as "the percentage of income left after all operating expenses, dividends of preferred stock (but not dividends of common stock), interests, and taxes have been subtracted from a corporation's total income."

TABLE 1
The expected gaps

Gap	Expected Sign
Short Term Gaps	-
Long Term Gaps	+

TABLE 2
Table of proxies

Variables	Definitions	Measurement	References
CA	Capital Adequacy	Total equity/ Total assets	(Athanasoglou, Brissimis, & Delis, 2008; Kasman, Tunc, Vardar, & Okan, 2010)
ME	Management Efficiency	Operating expense/ Total income	(Maudos & Solís, 2009; Kasman et al., 2010)
OC	Operating Costs	Operating expense/ Total assets	(Angbazo, 1997; Brock & Suarez, 2000; Valverde & Fernández, 2007).
CA	Capital Adequacy	Total equity/ Total assets	(Athanasoglou, Brissimis, & Delis, 2008; Kasman, Tunc, Vardar, & Okan, 2010)
TS	Transaction Size	Logarithm (Loans)	(Ho & Saunders, 1981; Maudos & Solís, 2009)

TABLE 2 continue

Variables	Definitions	Measurement	References
LR	Liquidity Risk	Short-term assets/ Total deposit	(Angbazo, 1997; Brock & Suarez, 2000; Doliente, 2005; Valverde & Fernández, 2007)
NIM	Net Interest Margin	Interest Revenue - Interest expenses/ Total Assets	(Demirguc-Kunt & Huizinga, 1999)
NPM	Net Profit Margins	Financing Revenues - financing costs/ Total assets	(Vij, 2005; Kasman et al. 2010; Maudos & Solís, 2009)
STGAP	Short Term Gap	(Short-term assets + trading book) - (short-term lia-bilities + trading book)	(Vij, 2005; Kasman et al. 2010; Maudos & Solís, 2009)
LTGAP	Long Term Gap	Long-term assets - long-term liabilities	(Vij, 2005; Kasman et al. 2010; Maudos & Solís, 2009)

RESULTS

TABLE 3
Descriptive statistics

		Conventional Banks										
		Bahrain			UAE			Malaysia			Pakistan	
Var	Mean	*SD*	*N*	Mean	*SD*	*N*	Mean	*SD*	*N*	Mean	*SD*	*N*
NIM	0.017	0.013	28	0.027	0.011	28	0.019	0.002	28	0.026	0.012	28
TS	8.968	0.935	28	9.157	0.721	28	10.843	0.424	28	9.500	1.023	28
OC	0.017	0.012	28	0.018	0.008	28	0.011	0.003	28	0.019	0.007	28
ME	0.456	0.168	28	1.023	2.055	28	0.406	0.087	28	1.062	2.043	28
LR	0.430	0.252	28	0.244	0.076	28	0.292	0.096	28	0.268	0.099	28
CA	0.274	0.167	28	0.089	0.028	28	0.084	0.014	28	0.076	0.019	28
		Islamic Banks										
		Bahrain			UAE			Malaysia			Pakistan	
Var	Mean	*SD*	*N*	Mean	*SD*	*N*	Mean	*SD*	*N*	Mean	*SD*	*N*
NPM	0.029	0.021	28	0.027	0.020	28	0.023	0.008	28	0.022	0.012	28
TS	7.609	1.041	28	7.796	1.182	28	9.800	0.320	28	8.227	1.714	28
OC	0.028	0.011	28	0.029	0.009	28	0.016	0.007	28	0.023	0.016	28
ME	1.034	1.018	28	0.763	0.328	28	0.743	0.422	28	0.915	1.048	28
LR	0.298	1.223	28	0.556	1.438	28	0.385	0.158	28	0.234	1.546	28
CA	0.207	0.093	28	0.143	0.077	28	0.078	0.023	28	0.122	0.094	28

In the Table above, the descriptive statistics results of our study are explained. The Table 3 shows that on average, NIMs for CBs of Bahrain, U.A.E, Malaysia, and Pakistan are 1.76%, 2.7%, 1.9%, and 2.6%, respectively while NPMs of IBs Bahrain, U.A.E, Malaysia, and Pakistan are 2.9%, 2.7%, 2.3%, and 2.2%, respectively. The NIMs and NPMs for both CBs and IBs show that these banks are at the stage of economic growth. The transaction size of CBs is greater than IBs in most of the countries. The values of operating cost for CBs of Bahrain, U.A.E, Malaysia, and Pakistan are 1.7%, 1.8%, 1.1%, and 1.9%, respectively and operating costs for IBs of Bahrain, U.A.E, Malaysia, and Pakistan are 2.8%, 2.9%, 1.6%, and 2.3%, respectively.

The values of Management Efficiency ratio for CBs of Bahrain, U.A.E, Malaysia, and Pakistan are 0.456, 1.023, 0.406, and 1.062, respectively, while values of management efficiency for IBs of Bahrain, U.A.E, Malaysia, and Pakistan are 1.034, 0.763, 0.743, and 0.915, respectively. It shows that IBs are more enthusiastic to invest in quality management to improve profitability and efficiency that could also be due to the late entry of IBs into banking sector. The values of liquidity risk for CBs of Bahrain, U.A.E, Malaysia, and Pakistan are 0.430, 0.244, 0.292, and 0.268, respectively. The values of liquidity risk for IBs of Bahrain, U.A.E, Malaysia, and Pakistan are 0.298, 0.556, 0.385, and 0.234, respectively. Lower the cash level in the bank, higher will be the liquidity risk. Banks in all countries are facing the problem of liquidity risk. The values of capital adequacy for CBs of Bahrain, U.A.E, Malaysia, and Pakistan are 27.4%, 8.9%, 8.4%, and 7.6%, respectively and capital adequacy for IBs of Bahrain, U.A.E, Malaysia, and Pakistan are 20.7%, 14.3%, 7.8%, and 9.4%, respectively. By this, we can draw conclusion that a high capital adequacy ratio causes high capital savings and this will lead towards long-term bank solvency.

TABLE 4
Panel regression of conventional banks

| Country | Hausman | | | Variable | Random Effect Model | | | | | |
	chi	*d.f*	*p*		Co-eff Error	Std.	*t*-stat	*p*-value	R^2	*F*-value
Bahrain	4.291	5	0.508	CA	0.043	0.023	1.874	0.074	0.759	13.92
				LR	0.004	0.007	0.583	0.565		
				ME	-0.061	0.022	-2.77	0.011		
				OC	2.271	0.391	5.799	0.000		
				TS	0.011	0.004	2.304	0.031		
UAE	1.362	5	0.928	CA	0.377	0.090	4.161	0.000	0.85	25.30
				LR	0.023	0.030	0.752	0.459		
				ME	-0.003	0.000	-4.433	0.000		
				OC	3.109	0.540	5.756	0.000		
				TS	0.012	0.004	2.551	0.018		
Malaysia	5.389	5	0.370	CA	0.042	0.019	2.180	0.040	0.777	15.39
				LR	0.004	0.003	1.447	0.161		
				ME	-0.036	0.007	-5.121	0.000		
				OC	1.302	0.195	6.665	0.000		
				TS	0.002	0.000	4.041	0.000		

TABLE 4 continue

| Country | Hausman | | | Variable | Random Effect Model | | | | | |
	chi	*d.f*	*p*		Co-eff Error	Std.	*t*-stat	*p*-value	R^2	*F*-value
Pakistan	5.344	5	0.375	CA	0.266	0.082	3.247	0.003	0.791	16.74
				LR	0.013	0.021	0.613	0.546		
				ME	-0.003	0.000	-4.602	0.000		
				OC	2.469	0.650	3.798	0.001		
				TS	0.005	0.004	1.174	0.252		
				TS	0.019	0.005	3.519	0.000		

The above Table shows the results of panel regression for CBs of Bahrain, UAE, Malaysia, and Pakistan. The value of Hausman test is insignificant. So, the random model is applied in all countries. The results of Bahrain show that all the variables, i.e., capital adequacy, management efficiency, operating cost, and transaction size have significant relationship with NIM except liquidity risk which has an insignificant relationship with NIM. The value of *R*-square is 0.75. It means that our Random effect model of panel data fulfills the overall model fit. Above results about the coefficients of estimators show that the findings of this research mostly show an agreement with hypotheses formulated based on empirical literature. H1, H3, H4, and H5 are proved to be correct, i.e., capital adequacy, management efficiency, operating cost, and transaction size. Hypothesis H2 shows a positive and insignificant relation between NIM and liquidity risk and is rejected as the results of our analysis are showing an insignificant and positive relationship between NIM and liquidity risk in Bahraini context.

In UAE the results of random model show that all the variables i.e., capital adequacy, management efficiency, operating cost, and transaction size have a significant relationship with NIM except liquidity risk which has an insignificant relationship with NIM. The value of *R*-square is 0.8518. It means that our Random effect model of panel data fulfills the overall model fit. Above results about the coefficients of estimators show that the findings of this research mostly show an agreement with hypotheses formulated based on empirical literature. H1, H3, H4, and H5 are proved to be correct, i.e., Capital adequacy, Management efficiency, operating cost, and transaction size. H2 relating to a positive and insignificant relation between NIM and Liquidity risk is rejected as the results of our analysis are showing an insignificant and positive relationship between NIM and liquidity risk in UAE context.

In Malaysia, all the variables i.e., capital adequacy, management efficiency, operating cost, and transaction size have a significant relationship with NIM except liquidity risk which has an insignificant relationship with NIM. The value of *R*-square is 0.777. It means that our random effect model of panel data fulfills the overall model fit. Above results about the coefficients of estimators show that the findings of this research mostly show an agreement with hypotheses formulated based on empirical literature. H1, H3, H4, and H5 are proved to be accepted, i.e., Capital Adequacy, Management Efficiency, Operating cost, and transaction size. H2 for a positive insignificant relation between NIM and liquidity risk is rejected as the results of our analysis are showing an insignificant and positive relationship

between NIM and liquidity risk in Malaysian context.

For Pakistan, the model shows that capital adequacy, management efficiency and operating cost have a significant relationship with NIM/NPM except Liquidity risk and Transaction size which have an insignificant relationship with NIM. The value of R-square is 0.79. It means that our random effect model of panel data fulfills the overall model fit. Above results about the coefficients of estimators show that the findings of this research mostly show an agreement with hypotheses formulated based on empirical literature. H1, H3, H4, and H5 are proved to be accepted, i.e., capital adequacy, management efficiency, and operating cost. Hypotheses H2 and H5 do not show a reliable validation as the impact of Liquidity Risk and Transaction size on NIM is though positive, yet insignificant.

TABLE 5
Panel regression of IBs

| Country | Hausman | | | Variable | Random Effect Model | | | | | |
	chi	*d.f*	*p*		Co-eff	Std. Error	*t*-stat	*p*-value	R^2	*F*-value
Bahrain	24.299	5	0.000	CA	0.166	0.025	6.676	0.000	0.773	14.24
				LR	0.001	0.001	0.693	0.497		
				ME	-0.008	0.002	-3.276	0.004		
				OC	1.064	0.220	4.816	0.000		
				TS	0.004	0.001	2.101	0.051		
UAE	0.132	5	0.999	CA	0.096	0.032	3.016	0.006	0.766	14.43
				LR	0.002	0.002	0.918	0.368		
				ME	-0.024	0.008	-2.984	0.006		
				OC	1.235	0.327	3.769	0.001		
				TS	0.005	0.002	1.794	0.086		
Malaysia	3.149	5	0.677	CA	0.037	0.040	0.941	0.356	0.887	34.54
				LR	0.007	0.004	1.597	0.124		
				ME	-0.010	0.002	-5.402	0.000		
				OC	0.987	0.124	7.918	0.000		
				TS	0.008	0.002	3.279	0.003		
Pakistan	2.580	5	0.764	CA	0.119	0.014	8.335	0.000	0.860	21.12
				LR	0.005	0.007	0.787	0.439		
				ME	-0.006	0.001	-3.697	0.001		
				OC	0.661	0.110	5.984	0.000		
				TS	0.007	0.000	9.226	0.000		
				TS	0.009	0.000	9.629	0.000		

The above Table shows the results of panel regression for IBs of Bahrain, UAE, Malaysia, and Pakistan. In Bahrain, the value of Hausman test is significant, so fixed model is applied. The results of fixed model show that all the variables, i.e., capital adequacy, management efficiency, operating cost and transaction size have a significant relationship with NPM except liquidity risk which has an insignificant relationship with NPM. The value of R-square is

0.773. It means that our fixed effect model of panel data fulfills the overall model fit. Above results about the coefficients of estimators show that the findings of this research mostly show an agreement with hypotheses formulated based on empirical literature. H1, H3, H4, and H5 are proved to be accepted, i.e., capital adequacy, management efficiency, operating cost, and transaction size. Hypothesis H2 is rejected as the results of our analysis are showing an insignificant relationship between NIM and liquidity risk in Bahraini context.

In UAE, Malaysia, and Pakistan the value of Hausman test is insignificant, so random model is applied. The results of random model in UAE show that all the variables i.e., capital adequacy, management efficiency, operating cost, and transaction size have a significant relationship with NPM except liquidity risk which has an insignificant relationship with NPM. The value of R-square is 0.766. It means that our Random effect model of panel data fulfills the overall model fit. Above results about the coefficients of estimators show that H1, H3, H4, and H5 are proved to be accepted, i.e., capital adequacy, management efficiency, operating cost and transaction size. H2 is rejected as the results of our analysis are showing an insignificant positive relationship between NPM and liquidity risk in UAE context.

For Malaysia, the results of random model show that management efficiency, operating cost, and transaction size have a significant relationship with NPM except liquidity risk and capital adequacy which have an insignificant relationship with NPM. The value of R-square is 0.887. It means that our random effect model of panel data fulfills the overall model fit. Above results about the coefficients of estimators show that the findings of this research mostly show an agreement with hypotheses formulated based on empirical literature. H3, H4, and H5 are proved to be accepted, i.e., management efficiency, operating cost, and transaction size. H2 and H1 regarding positive relation between NIM and liquidity risk and capital adequacy is rejected as per the results of analysis for Malaysia.

In Pakistan the results show that all the variables, namely capital adequacy, management efficiency, operating cost, and transaction size, have a significant relationship with NPM except liquidity risk which has an insignificant relationship with NPM. The value of R-square is 0.860. It means that our Random effect model of panel data fulfills the overall model fit. Above results about the coefficients of estimators show that the findings of this research mostly show an agreement with hypotheses formulated based on empirical literature. H1, H3, H4 and H5 are proved to be correct, i.e., capital adequacy, management efficiency, operating cost, and transaction size. H2 regarding positive relation between NPM and Liquidity risk is rejected as per the results that show an insignificant positive relationship between NPM and Liquidity risk in Pakistani context.

TABLE 6
Gap analysis

Countries	Gap	Mean of CBs	Mean of IBs
Bahrain	Short-term	-460360568.8	300,499,942
	Long-term	1586231605	119,649,176,3
Malaysia	Short-term	-108,242,315,8	-278,424,183.6
	Long-term	226,029,517,31	550,503,480.4
U.A.E	Short-term	-27,265,690,086	-59,551,774,077
	Long-term	13,882,540,008	70,214,509,809
Pakistan	Short-term	-4,632,11.47	-209305.54
	Long-term	5340735.67	279139.88

The above Table shows that there is average negative short-term gap for banks of all countries except IBs of Bahrain, and average positive long-term gap for banks of all countries. It means that on average, CBs and IBs both have greater short-term liabilities against short-term assets. Banks have greater long-term assets against long-term liabilities. The positive long-term gap in the balance sheet leads to asset-sensitivity.

This study focused on Assets and Liabilities and gap management of conventional and IBs of Pakistan, Malaysia, Bahrain and United Arab Emirates (UAE). The findings of this study show that all of our variables of interest are significantly affecting NIM/NPM except in some cases like in Bahrain, Pakistan, and UAE, liquidity risk has an insignificant impact on NIM/NPM. Like in the past studies done on this topic, we found that all independent variables significantly affect bank's interest/profit margins in both cases of conventional and IBs. This study found capital adequacy affecting significantly NPM and NIM, which means that adequate capital is required to increase the profitability of both categories of banks. Management efficiency is also affecting significantly banks interest/profit margins. Liquidity risk has an insignificant impact on NIM/NPM in all these four countries. Operating cost has a significant effect on banks margins. Transaction size also has a significant relationship with NPM/NIM. The results of this study are consistent with the previous studies. Both CBs and IBs in all these four countries show negative short-term gaps. The study shows that there are negative short-term gaps which mean that both conventional and IBs have more short-term liabilities than short-term assets. It means that both CBs and IBs use short-term deposits to finance their both short-term and long-term lending and investments. This negative gap shows that IBs that are relatively smaller in size than CBs have more threats to compete with CBs because CBs are comparatively larger in size and have better ability to meet short-term liabilities because of their size and operations.

These results of short-term and long-term gaps show that the banking institutions of these countries are not different in this respect from the banks in the developed countries. In this regard, the results of this study on asset and liability management and gap management are similar to the results of the past studies conducted for the developed countries. The dual banking system exists in all countries covered under this study. In Middle East, the governing authorities are using a bit loose regulation of banks to improve the profitability and

efficiency of banks as well as their stability; while in Pakistan and Malaysia, there are strong regulatory restrictions on banks, so that the Banks can increase their capital and profitability without any risk.

In this research, we developed five hypotheses on the basis of previous studies. First hypothesis is that there exists a positive and significant relationship between capital adequacy and NIM/NPM. This relationship stands true in conventional as well as IBs in all countries as also supported by previous researches like (Sun et al., 2014) except IBs of Malaysia where capital adequacy has an insignificant relationship with NPM (Shingjergji & Hyseni, 2015). The second hypothesis: there exists a positive relationship between liquidity risk and NIM/NPM. However, this relationship does not hold true in any country under study. The reason for this contradiction is the gap between short and long-term deposits and investments. This gap usually emerges due to the difference between bank loans and their core deposits.

The third hypothesis is that there is a negative relationship between management efficiency and NIM and NPM (Kasman et al., 2010; Maudos & Solís, 2009). This holds true in our research as also supported by the previous studies. The fourth and the most important hypothesis suggests positive relation between operating cost and NIM/NPM (Brock & Suarez, 2000; Kasman et al., 2010; Maudos & Guevara, 2004; Wong, 1997). This holds true for the banks of countries including Pakistan, Malaysia, Bahrain, and UAE as also supported by the previous studies. The fifth hypothesis is that there exists a positive relationship between transaction size and NIM/NPM (Ho & Saunders, 1981; Hawtrey & Liang, 2008; Maudos & Solís, 2009; Saunders & Schumacher, 2000). This hypothesis is accepted in case of Bahrain's, Malaysia's and UAE's and rejected in case of Pakistan's conventional banks. The literature used for this study also supports such contradictory result as in case of Pakistan's conventional banks.

CONCLUSION

The main purpose of this study was to determine the ALM of both conventional and IBs in Pakistan, Malaysia, UAE and Bahrain. It also analyzed the impact of capital adequacy, liquidity risk, and management efficiency, operating cost, and transaction size on the profitability of Islamic and conventional banks. The overall results of Gap analysis suggest that there is a negative short-term Gap for both CBs and IBs and a positive long-term Gap for both CBs and IBs as were expected. To fill the short-term liability Gap, banks have to borrow at a high rate of interest which reduces interest margin and profit of the banks.

Both CBs and IBs provide same functions of intermediaries but there are huge differences in their performance and business models. CBs are interest-based and IBs are profit-based, but both CBs and IBs should diversify their services to enhance their profitability. Regularity authority should encourage merger and acquisitions and also encourage foreign banks to enter into respective markets to improve performance and quality of the banks. The banks also have to minimize their operating cost and maximize managerial efficiency to enhance performance. We also examined the factors that determine NIM/NPM of banks and found out that higher capital adequacy ratio had a positive impact on NIM/NPM. Operating costs

also have a positive impact on NPM/NIM and previous studies confirm this relationship. The negative relationship of management efficiency and NIM/NPM is also confirmed from the previous studies. Liquidity risk has an insignificant relationship with NIM/NPM. The relationship between transaction size and NIM for CBs and NP for IBs is also positive.

The study has shown that banks working with conventional and Islamic models of business are facing problems in managing asset and liability in short-term due to mismatch of assets' and liabilities' maturities. They usually invest short-term deposits in short-term as well as long-term loans/funding. To overcome this problem, banks should make such policies that short-term assets are financed only by short-term liabilities. They must also have proper check and balance upon the implementation of policies to avoid gap/mismatch.

This study is useful for managers of banking and other finance-related sectors as it may help them to understand the importance of asset and liability management and the problems that may arise due to their mismatch. Banks can increase their profitability by smoothly managing assets and liabilities and can put themselves in the way of success. The major limitation of our research is that we checked the impact of only five independent variables, i.e., (capital adequacy, liquidity risk, management efficiency, operating cost, and transaction size) on the NIM/NPM, but there are many other variables that also affect the profitability of the banks. These may, inter alia, include asset quality, learner index, implicit interest margins, degree of risk aversion, market power, and opportunity cost of the required reserves. Another limitation is that we only extracted data from financial statements of banks which is not sufficient as the same may be problematic.

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