# Examining the Influence of Capital Adequacy and Islamic Ratios on Islamic Bank Performance: Insights from Developing Countries

[1]Sulaiman Abdullah Saif Alnasser Mohammed and [2]Ebrahim Mohammed Al-matari
[1]School of Economic, Finance and Banking (SEFB), University Utara Malaysia, Kedah, Malaysia
[2]Tunku Intan Safinaz School of Accountancy, Uum College of Business,
Universty Utra Malaysia (UUM), Kedah, Malaysia

**Abstract:** It has been argued that Islamic banks are more stable than Western banks in general and more particularly during the periods of financial crisis. To examine this assumption, this study examined the influence of capital adequacy ratio along with two Islamic ratios (Zakat and Profit and loss sharing) on the performance of Islamic banks in developing countries. By performing generalize least square method on a pooled panel data from 2007-2010, we found that capital adequacy is related to Islamic bank performance when the legal origin, financial crisis, economic status and measurement issues of Islamic bank performance are considered. The contradictory coefficient signs in the results expand the understanding on the issues of measurement and proper capital adequacy ratio in proper profitability result. The study implications have also been provided.

**Key words:** Financial crisis, capital ratio, bank performance, developing countries, Islamic banks

## INTRODUCTION

The recent financial crisis scandals have raised many doubts over the ability of banks to survive during crisis. Hence, this kind of turbulence has provided ample room for research on banks' appropriate capital adequacy ratio which enhances the performance of profitability, despite different guidelines and capital regulations imposed by central banks and Basel 1-3. Most of the empirical research in the context of Islamic banks have addressed the issues relating to efficiency (Mokhtar et al., 2006; Yudistira, 2003) and except few studies (Abdi, 2011), there is a dearth of prior studies that empirically investigate the stability of Islamic banks in general. Moreover, the existing literature suffers from inconstancy in the relationship between capital adequacy ratio and performance in the context of Islamic banks. The contradictory results stem from the approaches in responding to the financial crisis applied by conventional and Islamic banks. In comparison, Islamic banks have shown better solidarity and stability against crisis. Thus, the key questions to answer are: How do capital adequacy ratios influence the performance of Islamic banks? Do Islamic ratios (i.e., profit and loss sharing and Zakat) influence the performance of Islamic banks?

Apart from examining the relationship between capital adequacy ratios and performance of Islamic banks in developing countries, this study is among the first of its kind to introduce two new measurements based on the concepts of Profit and Loss Sharing (PLSR) and Zakat, in addition to conventional performance indicators (i.e., ROA and ROE performance indicators) in relation to capital adequacy ratio. This allows us to examine whether different co-efficient signs would appear justifying that argument which insist on utilizing Zakat and PLSR alone.

Efficient firms tend to reserve a portion of their capital as a method of last resort against abnormal expenses. The international guidelines and standards related to banking industry tend to perform a strategy which takes into consideration the capital adequacy ratio as a way for minimizing the risk of any unexpected crisis. Indeed, Basel 1-3 have called for a subsequent updating to the requirement of capital and risk management in banking firms, particularly after the current financial crisis. These precautions indicate the importance of capital adequacy in minimizing crisis influence (Ojo, 2010). In spite of prior studies investigating Islamic banking procedures in dealing with capital issues and considerable research highlighting the ability of Islamic banks in the developing countries to resist the influence of financial crisis, capital adequacy for Islamic banks is still a debatable issue. The relationship between different capital adequacy ratios and the performance of Islamic banks is subject to the influence of internal and external factors which requires further investigation and studies.

---

**Corresponding Author:** Sulaiman Abdullah Saif Alnasser Mohammed, School of Economic, Finance and Banking (SEFB),
University Utara Malaysia, Kedah, Malaysia

Islamic banking industry in developing countries have attracted the attention of current researchers particularly during and after the financial crisis due to the ability of these banks to show reluctance against the financial crisis compared to their peer conventional counterparts. The debatable fact on the ability of Islamic banks to hold high level capital adequacy during the crisis (Bashir, 1999; Ahmed, 1996) which lead to minimal influence of the crisis is one of the interesting issues to be explored. Thus, this study seeks to fill in that gap in literature about the relationship between capital adequacy ratio and performance of Islamic banks in developing countries, particularly with or without the financial crisis occurrence. Previous studies are lacking in explaining this relationship based on Islamic banking context and financial crisis context. Internal factors relate to the ways Islamic banks determine their capital adequacy strategy, while external factors relate to the economic conditions, legal origin and financial crisis and the way Islamic banks' performance are measured. In this study, we will explore this relationship for the context of Islamic banking in developing countries, by taking into consideration the factors mentioned above during the period of 2007-2010. We will first provide a review of the literature on the topic. Then, study methods are explained, followed by the discussion of results and conclusions.

**Islamic banking in developing countries:** Islamic banking industry has grown continuously by 15% per annum showing a typical role in the financial industry of developing economies, practically in Asia. The unique structure of Islamic banking procedure has attracted researchers to study the characters of these banks and compare them with other conventional banks. The comparison is because of the growth by Islamic banking sector and its resistance to crisis. While countries like Sudan and Iran have adopted fully non-conventional banking system, countries such as Malaysia, Bahrain and Saudi Arabia have accepted to adopt a combined Islamic and conventional system. In other developing countries, such as Iran, Sudan and Pakistan, Islamic banks are the mainstream financial institutions. In recent years, Islamic banking has expanded into Africa, particularly in Sudan. Iran is ranked the highest in Islamic banking assets, followed by Saudi Arabia and Malaysia. However, only Iran, Sudan and Pakistan have operated the complete national Islamic banking systems. Bahrain has a large concentration of Islamic banks with 26 institutions offering different products and services including commercial banking, offshore banking, investment banking and fund management. Bahrain also pursues a dual banking system where conventional and Islamic banking are treated equally by the Bahrain Monetary Agency. Bahrain also hosts the newly created liquidity management centre and the international Islamic financial market, to coordinate the operation of Islamic banking around the world. Malaysia follows next with a comprehensive Islamic banking industry where conventional and Islamic banks are working in a competitive environment. In Malaysia, the conventional banks are allowed to introduce Islamic products. The market share of the Islamic banking operation in Malaysia grew from nil to 8% in 2003 and the Malaysian government has planned to increase that to 20% by 2011. Thus, it appears that the Arab and Southeast Asia regions are the main players in the Islamic banking industry around the world.

**Zakat:** Zakat is one of the five pillars of Islamic teaching. It is related to the proper circulation of money, moving it from the rich to cover the basic needs of the poor. Each year Islamic banks have to pay 2.5% of their net profit as donation to Islamic social prosperity. The annual report of each Islamic bank discloses Zakat amount, which represents the performance of the Islamic bank, since it fluctuates once net profit fluctuates. Zakat as a performance proxy has not been extensively used in the current empirical literature. Thus, we try to use this ratio as an indicator for performance comparing it to ordinary measures such as ROA and ROE which have been used more commonly. If this indictor provides contradictory coefficient sign with ROA and ROE, it implies that future research should also include Islamic indicators to reflect the exact character of Islamic banking transactions. This has been examined in the current study.

**Profit and loss sharing in islamic finance:** Islamic finance concepts argues that the relationship between fund lender and fund receiver should be based on sharing of profit and loss rather than unseen consequences, the unseen consequences are interest rate without considering the real core of business transactions. This main fundamentally reason has changed the way business is performed, sharing of risk has provided more circulations of business and fair game. Conventional banks basis their banking activities on providing loan without caring what are the result of that loan as far as interest is guaranteed, Islamic banking objects that by proposing more care towards fulfilment of Islamic objectives. The outcome of this business in terms of profit provides more understanding about the profitability performance of particular Islamic bank. Thus, from this

point of view we utilized the profit and loss sharing ratio as proxy of Islamic bank's performance in developing countries.

**Literature review:** There is no doubt that outcries for bank capital adjustment tend to be more after the financial crisis.Recent proposals concentrated on how capital adjustment has to be implemented to prevent future financial crisis (Acharya *et al.*, 2012; Hart and Zingales, 2011). On one hand, there are some arguments favor more capital holding by banks for their ability to performtheir responsibilities properly, that cannot be accomplished unless more capital is reserved (Francis and Osborne, 2012). On the other hand, studies have warned about holding more capital as that might reduce the ability to invest and generate profit (Hart and Zingales, 2011). Thus, there is still a debate in many research studies about the ability of capital adequacy to promote profitability of organizations (Barrios and Blanco, 2003; Hahn, 1966; Modighiani and Miller, 1958) which is related to the firm's ability and financial management guidelines in minimizing risk and covering organizational expenses during the abnormal times. Studies have shown contradictory results about the link of capital adequacy to the firm; some have shown positive link, while some studies have argued that in free market or a world of perfect financial market capital regulation is irrelevant. However, other studies suggest the reserve of capital in banks as a way to reduce externalities such as financial crisis (Ho and Hsu, 2010; Reynolds *et al.*, 2000; Yu, 2000). The relationship between capital regulation and performance of banks have been limited mostly to conventional banking area where single country or cross countries have been selected, by taking the economic and bank size factors into consideration (Ho and Hsu, 2010; Mathuva, 2009, 2010).

Sufian (2010) confirmed that Islamic banks which are better capitalized and have a higher level of liquidity tend to perform well in terms of profitability. Regulations by Basel 3supported the Islamic bank initiatives to reserve a fixed percentage of capital as precaution for the last resort activities. Mathuva (2009) found a positive relationship between ROE, ROA and capital adequacy ratios in a selected number of banks. In addition, Vyas *et al.* (2008) conducted a study on the relationship between capital requirements and bank performance and the results showed positive signs. Thus, the need for suitable capital structure and sufficient capital adequacy requirements is felt (Raghavan, 2004).

The proper capital adequacy ratio was seen to improve profitability and the soundness of the Islamic banking activities (Jiang *et al.*, 2008). The positive effect

of capital ratio on ROE is caused as it exceeds the particular capital ratio number at which depositors perceive and believe that the bank is concerned with implementing good corporate governance. Supporting that, empirical results from Lin *et al.* (2005) and Hadi and Samad indicated that there was a significant positive relationship between capital adequacy and various financial performances measures.

**Theoretical background:** There are some theories such as contemporary banking theory whichfavor the ability of capital to absorb bank shocks on earning (Pagano and Thadden, 2004; Repullo and Suarez, 2004). These theories suggest that capital structure choices influence bank portfolio, screening and monitoring.They imply that the more capital increases the profitability performance of banks. On the other hand, there are some theories suggesting that holding more capital has a technical effect.According to the screening-based theory, higher levels of capital could have negative effect on the ability of bank to issue borrowing business (Acharya *et al.*, 2012; Allen *et al.*, 2011). Thus, there are two contrasting schools of thought dealing with bank capital.Nonetheless, there is no doubt that capital is related to profitability performance of a bank. The empirical literature on bank capital and performance relationship focuses primarily on banking crises during which many banks have failed. They have not focused much on Islamic bank characteristics. Thus, a proposed research room could be utilized to examine the relationship between capital adequacy and Islamic bank performance in developing countries.

## MATERIALS AND METHODS

The model applied in this study assumes that Islamic bank's performance tend to change according to alteration in financial crisis, capital adequacy, legal origin and economic growth of bank (i) in time (t) where errors (e) is considering the unseen factors. Islamic bank performance = a+Capital Adequacy Ratio (CAR)+Financial Crisis (FC)+Economic Growth (EG)+Legal Origin (LO)+Errors (E)

$$ibp_{it} = \alpha + CAR_{it} + FC_{it} + EG_{it} + LO_{it} + e$$

Hence, based on the literature review we develop the following hypothesis: $H_1$: there is a relationship between capital adequacy and Islamic bank performance

**Variables and measures:** The dependent variable in this study was the Islamic bank's performance, the mediating variable was Economic growth, while the independent

variable was corporate governance and financial crisis. Practically, the variables for the study are elaborated in the following subsections. Islamic Bank's Performance as the Dependent Variable The Islamic Bank's Performance (IBP) included a multi-set of indicators derived from Islamic literature as well as from conventional literature. They are considered as the characteristics of Islamic banks, which include the profit and loss sharing ratio (PLS), Profit Margin (PM), Return of Assets (ROA), Return of Equity (ROE), Zakat Ratio (ZR), Profit Ratio (PR). These dimensions were adopted from Berger *et al.* (2005), Erkens *et al.* (2012) Kim and Rasiah (2010) and Spong (2007). The dimensions were calculated as the following:

$$\text{Profit and loss sharing ratio} = \frac{(\text{Mudarabah} + \text{Musharakah})}{\text{Total revenue}}$$

One of the main objectives for the existence of Islamic banking and finance is the sharing of profit and loss. Therefore, it is very important to know how far the objective has been achieved because profit sharing ratio could generate the answer to the whole issue.

$$\text{Profit margin ratio} = \frac{\text{Net income}}{\text{Total operating revenue}}$$

Profit margin ratio is computed by dividing the profits with the total operating revenue and thus they express profits as a percentage of total operating revenues. In general, the profit margin reflects a bank's ability to produce a product or service at a low cost or at a high price:

$$\text{Return of Asset (ROA) ratio} = \frac{\text{Income before tax}}{\text{Total asset}}$$

The reason why researchers prefer to use ROA ratio is because it is said to give an idea as to how efficient management is at using its assets to generate earnings. One of the important reasons, which grasp the researcher's consideration in using ROA ratio is its ability to generate an idea on how efficient the management is in using its total assets to generate a typical earning:

$$\text{Return on Equity (ROE) ratio} = \frac{\text{Net income}}{\text{Stockholder equity}}$$

ROE ratio has been one of the favorable ratios to bank's performance researchers because it is said to have

the positional view on corporation profitability revealing the bank profitability with the fund shareholders have invested:

$$\text{Profit ratio} = \frac{\text{Net income}}{\text{Total asset}}$$

The profit ratio is an indicator that examined how the total assets are generating income. The ratio is addressed as one of the Shariah objective ratio:

$$\text{Zakat ratio} = \frac{\text{Zakat}}{\text{Net asset}}$$

Islamic finance accounting guidelines recognize the amount of Zakat as an entry to the accounting details. Thus, researchers argued that Zakat ratio should replace the conventional banking indicators that are Earnings Per Share (EPS). The wealth of the bank should be based on the net worth rather than net profit that has been emphasized by conventional method. The rationale behind this is that if the bank's net worth is higher, definitely it will pay a higher Zakat. In assessing the Financial Crisis (FC), a dummy variable was used to assign a number to the year of the crisis and another number to other years. Then, the dummy was regressed on the variables the study intended to examine. This method follows the suggestion by Hidayat and Abduh (2012) and Kim and Rasiah (2010) while the starting period of the crisis was from 1 January 2008 ending in December 2009 as per suggestion of David H. Erkens.

**Independent variables**

**Financial crisis:** The importance of studying financial crisis lies in the ability of banking industry to minimize the consequences of financial crisis.Recent financial crisis have proven that more caution about capital regulation could have played an important role in avoiding the effect of the crisis.This has appeared clearly once comparing conventional and Islamic banks during the crisis, as Islamic banks were more reluctant to financial crisis, indicating their ability to stay away from risky investment holding sufficient amount of capital (Francis and Osborne, 2012). Thus, the relationship between capital adequacy and Islamic bank's performance deserve further study (Berger and Bouwman, 2013).

**Economic growth:** Economic growth was measured by the GDP Per Capita (GC), GDP Growth (GG) and inflation rate (IR). The measurement follows the suggestion by Furqani and Mulyany (2009), Malik and Janjua (2011).

Table 1: The demographics of islamic banks in developing countries selected for the current study

| Countries | Number of Islamic banks | Total number of Islamic banks |
|-----------|-------------------------|-------------------------------|
| Bahrain | 5 | 6 |
| Malaysia | 10 | 21 |
| UAE | 4 | 9 |
| Qatar | 2 | 4 |
| Jordon | 3 | 3 |
| Egypt | 1 | 5 |
| Thai | 1 | 1 |
| Lebanon | 1 | 2 |
| Pakistan | 3 | 8 |
| Sudan | 2 | 3 |
| Indonesia | 2 | 2 |
| Total | 34 | 65 |

**Legal origin:** In assessing the Legal Origin (LO), a dummy variable was used to assign a number to the country law background as per the suggestion of (Thorsten *et al.*, 2012). Then, the dummy was regressed on the variables the study intended to examine. A selected sample of 34 Islamic banks from 12 developing countries has been used for the analysis, covering data from 2007-2010. This study implemented a Generalize Least Square Regression Method to explore the relationship between capital adequacy ratio and bank's performance. The study employs capital to risk weighted assets ratio as independent variable while taking into consideration the differences in economic growth conditions, financial crisis and legal origin. The dependent variable is represented in the performance indicators which reflect the bank's ability to make profit utilizing ROAA, ROEA and PM which have been used in the previous conventional studies (Table 1).

## RESULTS AND DISCUSSION

Results of the descriptive statistics (Table 2) the capital adequacy ratio, economic growth and legal origin are different among the selected Islamic banks. Besides, the GDP growth and inflation rate also differs from one developing country to another. The data reflects the fluctuation in the adoption of capital adequacy ratios; some of the Islamic banks in developing countries tend to have high capital risk ratio whereas other Islamic banks go with middle and low capital adequacy ratio. We have tried to detect any chance of correlations between independent variables; we found no evidence of connection (Table 3 and 4). The result of the current study indicates that changes in capital adequacy ratio have no evidence of relationship with return on average assets ratios. However, by exploring the mentioned relationship, we found that both legal dummy and GDP showed an evidence of significant negative relationship with the Return on Average Assets (ROAA) whereas GDPG showed a significant positive relationship. In relation to

return on average equity, the current study found no evidence of relationship between the dependent variable and independent variables. However, by exploring the ROEA relationship with CAR, the current study found that financial crisis is positively related whereas inflation is negatively related, as significant levels. With regard to regulation of capital measured by CA, the result showed that CA has a significant negative relation with PLSR at 5% level of significance. Thus, a change in capital adequacy ratio could enhance the performance of the Islamic bank. Changes in capital adequacy ratio showed significant positive relationship with profit margin ratio. Indeed, financial crisis, legal origin and economic conditions played an important role in the mentioned relationship. Meanwhile, the goodness of fit and r square levels are within the recommended range. Financial crisis showed a significantly positive relationship with Profit Ratio (PR), ROE and Profit Margin (PM). This indicates that an occurrence of crisis is associated with attaining profit in Islamic banks.

The importance of financial crisis and capital adequacy ratio in Islamic banks at developing countries should be taken into consideration as that might help in promoting performance. The current study explored this notion by examining whether the changes in capital adequacy ratio would influence the performance, by investigating a sample of 34 Islamic banks across developing countries. Result of the study showed mix outputs: no evidence of relationship with ROAA and ROAE was found but positive and significant relationship with profit margin ratio was observed. Thus, our study signals that previous studies have suffered from the use of limited measurements (i.e. conventional financial measurements) which could not thoroughly reflect the conditions once exploring the relationship between changes in Islamic banking capital adequacy ratios and performance. Hence, future studies should not merely depend on ROA or ROE in Islamic banking and other measurements and Islamic ratios should also be considered for evaluating their performance. Financial crisis has positively impacted Islamic banks' performance in developing countries. Moreover, different legal environments influence the relationship between bank's performance and ROA, PR and PM. The country economic condition has also influenced the performance of Islamic banks by providing the proper conditions for growth which has appeared in the relationship between economic growth and bank's performance. Thus, during the period of 2007-2010, capital adequacy could not work alone without taking into consideration the financial distress, economic condition and legal origin. The findings of the

Table 2: Variables of the study

| Name of the variables | Description of the variables |
|---|---|
| Capital Adequacy (CAR) | The capital to risk weight assets ratio represented in percentage. a ratio of a bank's capital to its risk |
| GDP | Gross domestic production represented in US dollars per year |
| GDPG | Gross domestic production of a country represented in percentage rate each year |
| Inflation | Inflation rate represented in a percentage for each country annually |
| LO | Legal origin which is represented in a form of dummy variable from 1-5 selecting between different legal system |
| B size | The amount of a single Islamic bank total assets annually represented in US dollar |
| Fdummy | A dummy variable in a form of number between 1 and 0 of which the period of financial crisis at 2008 in considered |
| ROAA | The average number of net income divided by total assets, this indicators is used to reflect the profitability status of an Islamic banks |
| ROAE | The average number of net income divided by shareholder equity. This indicator reflect the profitability of the Islamic bank. |
| PM | Profit Margin ratio |
| ZR | Annual Zakat Amount paid by one Islamic banks |
| PLSR | Profit and Loss sharing business out of the bank total business |

Table 3: Descriptive statistics

| Variable | FC dummy | Capitala | LGDP | GDPG | Inflatio | Legal dummy |
|---|---|---|---|---|---|---|
| Mean | 0.25 | 19.1 | 24.98 | 5.45 | 5.59 | 0.72 |
| Median | 0.00 | 15.9 | 25.49 | 6.10 | 3.40 | 1.00 |
| Maximum | 1.00 | 69.8 | 26.88 | 26.80 | 20.30 | 1.00 |
| Minimum | 0.00 | 0.10 | 20.93 | -2.30 | -4.90 | 0.00 |

Table 4: correlation between independent variables

| Variable | FC dummy | Capitala | LGDP | GDPG | Inflatio | Legal dummy |
|---|---|---|---|---|---|---|
| Fcdummy | 1.000000 | -0.050868 | 0.031803 | 0.095541 | 0.443037 | 0.009539 |
| Capitala | -0.050868 | 1.000000 | -0.076145 | -0.060319 | 0.044396 | -0.069259 |
| Lgdp | 0.031803 | -0.076145 | 1.000000 | -0.260715 | 0.094103 | 0.059439 |
| Gdpg | 0.095541 | -0.060319 | -0.260715 | 1.000000 | 0.256710 | -0.330555 |
| Inflatio | 0.443037 | 0.044396 | 0.094103 | 0.256710 | 1.000000 | -0.101201 |
| Legaldummy | 0.009539 | -0.069259 | 0.059439 | -0.330555 | -0.101201 | 1.000000 |

study are in line with earlier studies which have noted the recent trend of the increased financial stability of Islamic banks in the Gulf States and Malaysia (Benaissa *et al.*, 2007). One of the important limitations of this study is the low number of Islamic banks available in developing countries which is acknowledged in the literature.The study uses only 34 Islamic banks, among approximately 100 existing Islamic banks. Future studies can analyze a larger sample size. Another limitation for this study is not including the ownership structure of Islamic banks, which sometimesis hard to access.

## CONCLUSION

It is not sufficient for banks to hold adequate capitaland they must be ready to identify and assume risky activities commensurate with such capital.This will help to enhance their performance. Other factors such as legal origin and economic environment in which Islamic banks operate in developing countries need to be given appropriate consideration in order to enhance their performance. The problem with banks is not the issue of having or not having capital inadequacy but rather the realization of the gaps in their internalbank's performance measurement and management processes. Lastly, this

study has been limited in its focus due to lack of data for several countries including and Egypt, Iran, Lebanon and Sudan.

## REFERNCES

Abdi, A.M., 2011. Islamic Banking: Steady in Shaky Times?. George Mason University, Fairfax, Virginia, Pages: 289.

Acharya, V., R. Engle and M. Richardson, 2012. Capital shortfall: A new approach to ranking and regulating systemic risks. Am. Econ. Rev., 102: 59-64.

Ahmed, A.K.R., 1996. The impact of the Basle capital adequacy ratio regulation on the financial and marketing strategies of Islamic banks. Int. J. Bank Marketing, 14: 32-44.

Allen, F., E. Carletti and R. Marquez, 2011. Credit market competition and capital regulation. Rev. Financial Stud., 24: 983-1018.

Barrios, V.E. and J.M. Blanco, 2003. The effectiveness of bank capital adequacy regulation: A theoretical and empirical approach. J. Banking Finance, 27: 1935-1958.

Bashir, A.H.M., 1999. Risk and profitability measures in Islamic banks: The case of two Sudanese banks. Islamic Econ. Stud., 6: 1-24.

Benaissa, N.E., X. Jopart, M. Maddux, O. Tanrikulu and F. Wheln, 2007. Impact of Regulation on the Future of Islamic Finance. Harvard University, Cambridge, Massachusetts,.

Berger, A.N. and C.H. Bouwman, 2013. How does capital affect bank performance during financial crises?. J. Financial Econ., 109: 146-176.

Berger, A.N., G.R. Clarke, R. Cull, L. Klapper and G.F. Udell, 2005. Corporate governance and bank performance: A joint analysis of the static selection and dynamic effects of domestic foreign and state ownership. J. Banking Finance, 29: 2179-2221.

Erkens, D.H., M. Hung and P. Matos, 2012. Corporate governance in the 2007-2008 financial crisis: Evidence from financial institutions worldwide. J. Corporate Finance, 18: 389-411.

Francis, W.B. and M. Osborne, 2012. Capital requirements and bank behavior in the UK: Are there lessons for international capital standards?. J. Banking Finance, 36: 803-816.

Furqani, H. and R. Mulyany, 2009. Islamic banking and economic growth: Empirical evidence from Malaysia. J. Econ. Cooperat. Dev., 30: 59-74.

Hahn, P.J., 1966. Factors determining adequacy of capital in commercial banks. J. Finance, 21: 135-136.

Hart, O. and L. Zingales, 2011. A new capital regulation for large financial institutions. Am. Law Econ. Rev., 13: 453-490.

Hidayat, S.E. and M. Abduh, 2012. Does financial crisis give impacts on Bahrain Islamic banking performance? A panel regression analysis. Int. J. Econ. Finance, 4: 79-87.

Ho, S.J. and S.C. Hsu, 2010. Leverage performance and capital adequacy ratio in Taiwan's banking industry. Japan World Econ., 22: 264-272.

Jiang, W., P. Lee and A. Anandarajan, 2008. The association between corporate governance and earnings quality: Further evidence using the GOV-Score. Adv. Account., 24: 191-201.

Kim, P.K. and D. Rasiah, 2010. Relationship between corporate governance and bank performance in Malaysia during the pre and post Asian financial crisis. Eur. J. Econ. Fin. Administrative Sci., 21: 39-63.

Lin, S.L., J.H. Penm, S.C. Gong and C.S. Chang, 2005. Risk-based capital adequacy in assessing on insolvency-risk and financial performances in Taiwan's banking industry. Res. Int. Bus. Finance, 19: 111-153.

Malik, S. and M.Y. Janjua, 2011. The impact of recent financial crisis on economic growth and youth employment in South Asia. Masters Thesis, York University, Ontario, Ontario.

Mathuva, D.M., 2009. Capital adequacy cost income ratio and the performance of commercial banks: The Kenyan Scenario. Int. J. Appl. Econ. Finance, 3: 35-47.

Mathuva, D.M., 2010. The influence of working capital management components on corporate profitability: A survey on kenyan listed firms. Res. J. Bus. Manage., 4: 1-11.

Modighiani, F. and M.H. Miller, 1958. The cost of capital corporation finance and the theory of investment. Am. Econ. Rev., 48: 261-277.

Mokhtar, H.S.A., N. Abdullah and S.M. AlHabshi, 2006. Efficiency of Islamic banking in Malaysia: A stochastic frontier approach. J. Econ. Cooperation, 27: 37-70.

Ojo, M., 2010. Basel III and responding to the recent Financial Crisis: Progress made by the Basel Committee in relation to the need for increased bank capital and increased quality of loss absorbing capital. Ph.D Thesis, Faculty of Commerce and Administration, North-West University, South Africa.

Pagano, M. and E.L.V. Thadden, 2004. The European bond markets under EMU. Oxford Rev. Econ. Policy, 20: 531-554.

Raghavan, R.S., 2004. Bank's capital structure and basel II. J. Inst. Chartered Accountants India, 52: 1107-1114.

Repullo, R. and J. Suarez, 2004. Venture capital finance: A security design approach. Rev. Finance, 8: 75-108.

Reynolds, S.E., S. Ratanakomut and J. Gander, 2000. Bank financial structure in pre-crisis East and Southeast Asia. J. Asian Econ., 11: 319-331.

Sufian, F., 2010. Does foreign presence foster Islamic banks' performance? Empirical evidence from Malaysia. J. Islamic Accounting Bus. Res., 1: 128-147.

Thorsten, B., D.K. Asli and R. Levine, 2002. Why does legal origin matter?. J. Law Finance, 1: 1-46.

Vyas, R.K., M. Singh and R. Yadav, 2008. The impact of capital adequacy requirements on performance of scheduled commercial banks. Asia Pacific Bus. Rev., 4: 74-81.

Yu, H.C., 2000. Banks capital structure and the liquid asset-policy implication of Taiwan. Pac. Econ. Rev., 5: 109-114.

Yudistira, D., 2003. Efficiency in Islamic banking: An empirical analysis of 18 banks. Islamic Econ. Stud., 12: 1-19.