UNIVERSITI PUTRA MALAYSIA

IMPACT OF CAPITAL ADEQUACY REQUIREMENT ON PERFORMANCE AND EFFICIENCY OF ISLAMIC AND CONVENTIONAL BANKS IN OIC MEMBER COUNTRIES

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By

MASTURA ABDUL KARIM

Thesis Submitted to the Gradute School of Management, Universiti Putra Malaysia, in the fulfillment of the requirements of the Degree of Doctor of Philosophy

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Doctor of Philosophy

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Capital adequacy plays an important role in overseeing banksô activities. It is used as a buffer to ensure banks have sufficient amount of capital against unexpected losses or adverse shock that could lead to bank failure. The impact of capital adequacy requirement on banksô performance is in fact an ongoing issue and the issue is still growing with a lot more gaps to be filled in especially in Islamic banking. This study proposes to fill this gap by analysing and comparing 52 Islamic banks (IBs) and 186 conventional banks (CBs) in 14 Organization of Islamic Cooperation (OIC) member countries for the period of 1999 and 2009. It takes into account the performance and efficiency of the bank with the implementation of Basel Accord in these countries. The three main objectives of this study are: to examine the impact of capital requirement using two different

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measurements; to examine the relationship between capital requirement and banksô lending and borrowing and the effect of capital crunch; and to ascertain the relationship between the Capital Adequacy Ratio (CAR) and bank efficiency and factors determining their cost and profit efficiency.

Leverage ratio and authorôs own measurement of risk-based capital is used to examine the two different measurements. Based on the findings the risk-based ratio is always higher than leverage ratio in all banks studied.

The Estimated Generalized Least Squares (EGLS) regression model is used in the model to estimate capital requirement and the growth of banksô deposits and loans. For this objective, four main hypotheses tested using multiple regression analysis which takes CAR and other bank specific variables and macro economic variables as the control variables. The empirical evidence of this study supports the notion that bank capital requirement has impacted the borrowing and lending of IBs and CBs in the sample. There is a strong positive relationship between the bank capital level and the growth of deposit and loan for both IBs and CBs. However, this study produces mixed results in the capital crunch effect. Even though the test shows the importance of capital supply on the banksô borrowing and lending activities in both IBs and CBs, the effect of capital crunch can only be concluded on IBs.

Next, this study analyzes the effect of the requirement CAR on the bank cost and profit inefficiency. Four main hypotheses are tested to analyze the mean efficiency using Stochastic Frontier Approach (SFA) obtained from a translog Cobb-Douglas cost and profit function which uses deposits and loans as the bankôs outputs. The banksô cost of capital, cost of fixed assets and cost of labor are used as the input

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prices. The findings suggest that CBs are better than IBs in terms of profit efficiency but they are similar in cost efficiency. On the other hand, tests on low capitalized banks and high capitalized banks conclude that on average, CBs are more efficient (cost and profit efficiency) than IBs in 14 countries except for one test on high capitalized banks using risk-based capital where the IBs are better in both cost and profit efficiency than the CBs. The determinant of bank efficiency is tested using Tobit regression model. It is found that CAR has an impact on the profit efficiency in both IBs and CBs but it does not show any impact on IBsô cost efficiency except when leverage ratio is used as capitalization measurement. Other bank specific variables such as bank total loan over total assets, bank liquidity, bank profitability and size of the bank has also impacted the banksôcost and profit efficiency. However, the impact of macroeconomic variables provides mixed results on IBsô and CBsô cost and profit efficiency.

Overall, this study has significantly contributed to filling in the gap in the field of banking particularly by using IBs as the main example and samples from 14 OIC member countries which have not been done earlier. Another contribution to the literature is on the authorôs own measurement of CAR based on Basel II measurement and to compare it with leverage ratio that is published in the Bankscope database.

This study reveals practical implication to the regulators on issues regulating the banking industry internationally mainly in setting up the CAR for IBs in their countries.

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Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

KESAN KEPERLUAN KECUKUPAN MODAL KE ATAS PRESTASI DAN KECEKAPAN BANK ISLAM DAN BANK KONVENSIONAL DI NEGARA-NEGARA AHLI OIC

Oleh

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20 Julai 2012

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Kecukupan modal memainkan peranan penting di dalam menyelia aktiviti-akviti bank. Ia digunakan sebagai penampan di dalam memastikan bank mempunyai jumlah modal yang mencukupi terhadap kerugian atau kejadian buruk yang tidak dijangka yang berlaku di masa hadapan yang boleh menyebabkan kegagalan dan kejatuhan bank. Isu mengenai keperluan kecukupan modal ke atas prestasi bank merupakan isu yang berterusan di mana masih terdapat banyak lagi jurang yang perlu diisi terutama di dalam mengkaji prestasi ke atas 52 IBs dan 186 CBs di 14 negara Pertubuhan Persidangan Islam (OIC) berikutan pelaksanaan Basel Accord di negara berkenaan. Tiga objektif utama kajian adalah: untuk menilai kesan keperluan kecukupan modal dengan menggunakan dua pendekatan pengiraan kecukupan modal yang berbeza; menyelidik hubungan di antara keperluan kecukupan modal dan kesan *ócapital crunchô* ke atas aktiviti deposit dan pinjaman bank; dan memastikan hubungan CAR (Nisbah Kecukupan Modal) dengan

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kecekapan bank dan mengenalpasti faktor-faktor dalaman serta luaran lain di dalam menentukan kecekapan kos dan kecekapan keuntungan bank yang terlibat.

Dua cara pengiraan yang berbeza digunakan semasa menganalisa impak kecukupan modal ini iaitu nisbah *leverage* dan nisbah modal berasaskan risiko yang dikira sendiri oleh penulis. Berdasarkan penemuan kajian, nisbah modal berasaskan risiko sentiasa lebih tinggi berbanding nisbah *leverage* bagi bank-bank yang dikaji.

Kaedah regressi Estimated Generalised Least Square (EGLS) digunakan untuk menganggarkan model keperluan modal dengan aktiviti deposit dan pinjaman. Untuk itu, empat hipotesis telah diuji menggunakan regressi berganda di mana CAR merupakan pengubah utama di samping pengubah lain yang sebagai pengubah kawalan seperti bank spesifik dan pengubah makro. Hasil ujian yang menunjukkan hubungan yang positif antara keperluan modal dan pertumbuhan deposit dan pinjaman bagi IBs dan CBs. Bukti empirikal ini menyokong fakta yang menyatakan bahawa keperluan modal telah memberi impak ke atas aktiviti deposit dan pinjaman kedua-dua IBs dan CBs. Walau bagaimanapun, kesan ó*capital crunch*ô ke atas deposit dan pinjaman bank hanya dapat disimpulkan bagi IBs sahaja.

Seterusnya, kajian ini juga menganalisa keperluan CAR ke atas kecekapan kos dan keuntungan bagi kedua-dua kumpulan bank. Empat hipotesis yang dikenalpasti telah diuji. Bagi mendapatkan nilai kecekapan, kajian ini menggunakan *Stochactic Frontier Approach* (SFA) yang diperolehi daripada Cobb-Douglas translog fungsi kos dan keuntungan. Jumlah deposit dan pinjaman digunakan sebagai output manakala kos modal, kos aset tetap dan kos buruh merupakan harga input kepada

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model tersebut. Penemuan kajian mendapati CBs adalah lebih efisyen dalam kecekapan keuntungan berbanding IBs tetapi keduanya hampir sama taraf dari segi kecekapan kos. Walau bagaimanapun, ujian ke atas tahap kecukupan modal bank, secara purata daripada 14 negara yang diuji, didapati bahawa CBs adalah lebih efisyen (bagi kedua-dua kecekapan kos dan keuntungan) berbanding IBs. Namun ujian ke atas bank yang mempunyai kecukupan modal yang tinggi dengan menggunakan nisbah modal berasaskan risiko menunjukkan bahawa IBs adalah lebih efisyen dari CBs bagi kedua-dua kecekapan kos dan keuntungan. Penentu kecekapan bank diuji dengan menggunakan regresi model Tobit. Hasil kajian mendapati bahawa CAR mempunyai impak yang tinggi ke atas kecekapan keuntungan bagi kedua-dua IBs dan CBs tetapi ia tidak memberi impak kepada kecekapan kos IBs apabila nisbah *leverage* digunakan sebagai pengukuran kecukupan modal. Hasil ujian juga mendapati bahawa selain CAR, pengubah lain seperti pengubah spesifik bank seperti saiz bank, nisbah pinjaman ke atas jumlah aset, kecairan dan keuntungan bankmemainkan peranan di dalam penentu kecekapan kos dan keuntungan bagi kedua-dua IBs dan CBs. Manakala impak pengubah makro menunjukkan keputusan yang bercampur di antara IBs dan CBs.

Secara keseluruhannya, kajian ini menyumbang secara signifikan di dalam pengisian lompang kajian yang terdapat di dalam bidang perbankan khususnya dengan penggunaan data dari bank Islam di 14 negara ahli OIC sebagai sampel utama selain konvensional bank sebagai perbandingan kajian. Selain itu, kajian ini berlainan dengan kajian sebelumnya kerana pengukuran kecukupan modal yang digunakan di dalam kajian adalah menggunakan pengiraan sendiri penulis.

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Kajian ini juga turut mendedahkan implikasi isu praktikal berkaitan industri bank di peringkat antarabangsa kepada pengawal selia perbankan di negara yang terlibat.

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I certify that an Examination Committee met on 20 July 2012 to conduct the final examination of Mastura Abdul Karim on her Doctor of Philosophy thesis entitled ñImpact of Capital Adequacy Requirement on Performance and Efficiency of Islamic and Coventional Banks in OIC Member Countriesò in accordance with Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U. (A) 106] 15 March 2008. The Committee recommends that the candidate be awarded the Doctor of Philosophy degree. Members of the Examination Committee are as follows:

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DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any degree at UPM or any other institutions.

MASTURA ABDUL KARIM

Date:

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DEDICATION

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