Journal of Islamic Finance, Vol. 4 No. 1 (2015) 031 – 038.
IIUM Institute of Islamic Banking and Finance
ISSN 2289-2117 (O) / 2289-2109 (P)

Impact of Financial Crisis on Non-Traditional Income: Islamic Banks *vis a vis* Conventional Banks

Mohamad Fany Alfarisi[a]

[a]*Andalas University, Indonesia*

Abstract

The present study aims to investigate the existing of shock due to the subprime financial crisis (2008) to the commercial banks performance in ASEAN-5 countries (Indonesia, Malaysia, Singapore, Thailand, and Philippine) particularly on the non-traditional activities aspect. Commercial banks in the present study are classified into Islamic and conventional banks. The data of 136 commercial banks in ASEAN-5 countries during the period of 2004-2012 from have been collected from the Bankscope database. The composition of sample based on type of bank is twenty samples are categorised as Islamic banks and the remaining 116 samples are under the category of conventional banks. We manage to run panel data regression using three estimation methods namely pooled-OLS, fixed effects and random effects methods. Based on the Breusch and Pagan Lagrangian Multiplier (LM) and Hausman tests, the random effects method is preferred. Islamic banks earn relatively lower non-traditional income compared to conventional banks. During the 2008 financial crisis commercial banks earn relatively lower non-interest income. Additionally, we find no evidence than Islamic and conventional banks non-traditional incomes are significantly different during the 2008 global financial crisis.

Keywords: Financial crisis, Islamic banks, non-traditional activities

1. Introduction

Non-traditional activities have gained a significant share in banking industry. In developed economies, the share of non-interest incomes has grown considerably and accounted for a half of banks operating income (Matthews & Thompson, 2008). Meanwhile, in emerging economies, notably Indonesia and Malaysia, the portion of non-interest incomes has increased to substitute the diminished share of the traditional interest incomes.

Intense competition has changed commercial banks activities. Moreover, it has put pressure on both sides of commercial banks' balance sheets (Matthews & Thompson, 2008). On the assets side, commercial banks have been in direct rivalry with special credit institutions in granting loans to consumers, while in the liabilities side, mutual funds, insurance companies and other non-bank financial institutions have come into the market offering deposits and other saving products (Matthews & Thompson, 2008).The rapid development in financial market is manifested by financial innovations performed by financial institutions.

Financial crisis is an unavoidable issue within financial market studies. Stiglitz (2000) argues that the liberalisation of capital markets has contributed to more frequent financial crises worldwide. The global financial crisis 2008 was the last big calamity that has devastated the structure of financial markets in many countries.

With regard to the relation of non-traditional activities and financial crisis, Cihak et al., (2012) find that crises countries have fewer regulations on non-bank activities. Moreover, this finding gives a hint on the linkage between diversification of financial services and financial crisis. Riskier financial activities, therefore, need a closer attention by stakeholders of the industry namely regulators, market players and public.

Financial system has been enriched by a new banking paradigm since the inception of Islamic banking system. Moreover, this new system has shown a significant growth and emerged as an alternative to

conventional mainstream banking. Following the recent development in conventional system, Islamic banks have moved toward fee based non-traditional activities. According to Beck, Demirgüç-kunt, & Merrouche (2010), Islamic banks have greater proportion of fee incomes compared to conventional banks. A number of Islamic contracts have been used to facilitate non-traditional activities in Islamic banking system namely; *wakalah, hiwalah, ujr* and *kafalah* (Shahimi, Ismail, & Ahmad, 2006). The application of such contracts can be found in various Islamic banks' financial services notably; guarantees, insurance, custodial services etc. (Shahimi et al., 2006).

A number of ASEAN countries have taken important steps to integrate the Islamic banking system to main banking system. Malaysia as one leading nation in the industry has undertaken significant efforts to achieve its aspiration as a global Islamic finance centre. Furthermore, having the largest Muslim population in the world, Indonesia has moved forward in accelerating Islamic banking penetration. Meanwhile, Singapore as one of world financial centres has taken constructive measures to develop Islamic banking system in its territory.

The objective of the present study is threefold namely, (1) to investigate the linkage between non-traditional activities and a number banks characteristics, (2) to observe how different types of bank namely Islamic and conventional commercial banks engage in non-traditional activities and (3) to what extend the 2008 global financial crisis affect non-traditional activities of conventional and Islamic banks.

2. Literature Review

Intense competition in financial markets has led to a declining of net interest margins earned by commercial banks (Matthews & Thompson, 2008). More players have involved in financial markets offering financial services that used to be supplied by commercial banks. It has led to a worldwide reduction of commercial banks' market share, loans and total assets (Rogers & Sinkey, 1999, Allen & Santomero, 2001, Mishkin, 2010). Owing to that process, commercial banks were under pressure to find ways to improve their financial performance as well as to maintain their place in financial market.

Commercial banks reactions are divided into two categories namely entering riskier traditional activities (housing loans and leveraged buyouts) and engaging in off-balance sheet activities (Mishkin, 2010). Based on the popular axiom higher risk higher return, non-traditional activities is expected to improve commercial banks profitability at the expense of exposure to higher risks level.

According to Allen & Santomero (2001) commercial banks have evolved from depository intermediaries to financial institutions that deal with risks transfer and risks management. It is, therefore, characterised by the expansion to non-traditional activities such as: investment banking, off-balance sheet activities, real estate, insurance, etc. A number of financial indicators show the declining of traditional banking activities (Edwards & Mishkin, 1995).

Stakeholders of banking industry praise non-traditional activities as the solution for the declining of traditional banking activities. Moreover, they believe that these activities could improve commercial banks financial performance. The optimistic tone on non-traditional activities also comes from banks supervisory bodies. Bank Negara Malaysia, for instance, encourages Islamic banks to expand into investment banking activities that are deemed as untapped area which needs more exploration (BNM, 2006). Meanwhile, similar policy is adopted by Bank Indonesia to push more diversification by commercial banks (Hidayat, Kakinaka, & Miyamoto, 2012).

The conventional view that non-traditional fee based activities are beneficial and can improve commercial banks performance however is challenged by a number of empirical studies. These studies suggest that non-interest incomes could deteriorate banks earnings variability (DeYoung & Rice, 2004, Hidayat et al., 2012). Other empirical studies however favour non-traditional activities (Wall, 1987; Iii, 1989; Rogers & Sinkey, 1999; Shahimi et al., 2006). Hence, the extant literature is mixed on the impact of non-traditional activities to banks income stability.

Diversification to non-traditional activities may improve earnings; however, there is a greater concern towards taking excessive risks in derivatives trading (Edwards & Mishkin, 1995). Diversification of financial services contains a dilemma for banks, in which improving profitability on the one hand, at the expense of increasing banks' risks on the other hand. The 2008 subprime mortgage crisis has taught us a hard lesson on the threat of taking excessive risk through financial innovation notably securitization.

Securitization is an example of financial innovation that was employed by commercial banks to mitigate their exposure to credit risks. The process of securitization begins by loans selling from commercial banks to other interested parties. In other words, the risky loans were removed from banks' balance sheet and turned into liquid assets that can be used by commercial banks for creating another loans. The advantage of securitization lies on taking away risky assets from bank's balance sheets which can improve banks capital adequacy ratio.

Securitization has contributed to a more relaxed loan endorsement by commercial banks. Before global financial crisis, there were massive practices of granting mortgages with higher rate (subprime) to borrowers who could not repay the loans. Hence, commercial banks merely tried to utilise their idle funds by disbursing more mortgages without carefully analyse the consequence of such practice.

Irresponsible lending practices led to a significant number of mortgages were uncollectible prior to the subprime crisis. As a result, mortgage lenders and commercial banks were dry in liquidity and begged central bank to inject rescue funds. Central bank poured bail-out funds to selected financial institutions in an attempt to escape from the worst possible scenario of financial calamity.

The financial innovation that is manifested in securitization process was misused by bankers. Excessive risk taking has led to scepticism on non-traditional activities. Instead of making financial market more efficient and profitable, imprudent financial innovation has contributed to an unstable financial market.

The reason why stakeholders of banking industry believe in the conventional view that praises non-traditional activities is because it allows commercial banks to have diverse financial assets and income sources. Therefore, it would help banks in the situation of very much uncertainty namely when interest rate is so volatile. By engaging in non-traditional fee based activities, commercial banks could safeguard their position. In other words, the increasing earnings from non-traditional activities could substitute the declining of traditional sources which is also known as diversification gain.

A number of empirical works have investigated bank specific characteristics and non-traditional activities linkage (Rogers & Sinkey, 1999; DeYoung & Rice, 2004; Shahimi et al., 2006). Agreements and conflicting results emerge from those empirical works. These studies agree on size and non-interest income has a positive significant relationship. They suggest bigger banks tend to be more diversified than small banks.

The potential trade-off between traditional and non-traditional activities predicts a negative relationship will emerge from the research findings. A negative and significant coefficient of net interest margin (Rogers & Sinkey, 1999) and loans ratio (DeYoung & Rice, 2004) demonstrate commercial banks improvement of revenues from non-interest income at the expense of decreasing in traditional interest income portion. An empirical work by Lepetit et al. (2008) supports the notion that diversification to non-traditional activities could deteriorate traditional interest income of commercial banks. Moreover, they suggest commercial banks that engage in non-traditional activities tend to discount the loans' interest rate and under-price borrowers default risk.

One unpleasant incident that regularly threatens the stability of financial market and economy is known as financial crisis. It has occurred almost in all regions and affects massive victims worldwide. The latest 2008 sub-prime financial crisis illustrates how deregulation and risky financial products fuelled by speculations could contribute to the crisis.

The consequences of sub-prime financial crisis are extremely catastrophic. It cost the US Federal Government billions of dollars tax payers money to rescue "too big to fail" financial institutions. Given the integration of financial markets across the nations, it inevitably dragged many countries into the most terrible recession after the Great Depression 1933. In addition, to safeguard their national interest, many countries prescribed the rescue packages to assist local financial institutions.

Initially, financial crisis took place exclusively within financial sector. Given the vital role of financial sector in economy, the impact of crisis was contagious. The collapsed of giant financial institutions contributed to the failure of entire financial system. The impacts therefore spread to other economic sectors. Like a domino effect, it hit real economy, collapsing private sectors and causing massive unemployment. To help the real economy to survive, governments were pushed injecting huge funds. The measure was taken to avoid more severe consequences.

The global financial crisis has increased public awareness on how such calamity could destabilise financial system in general and banking system in particular. There is a dire need to scrutinise more on the impact of financial crisis. A group of World Bank researchers have conducted survey on the regulation and

supervision during financial crisis within banking system worldwide (Čihák, Demirgüç-Kunt, Peria, & Mohseni-cheraghlou, 2012). The findings suggest a number of intriguing facts about the character of countries that experience crisis.

Deregulation has been identified as a contributing factor to rapid development in financial market (Rajan, 2005). The development is indicated by diversification towards non-traditional activities and significant increase in non-interest income. Given crisis occurred in countries with less restrictions on non-traditional activities (Čihák et al., 2012), less regulation (restriction) is prone to greater probability of financial crisis. Moreover the findings of DeYoung and Torna (2013) suggest non-traditional activities, economically, exacerbated American commercial banks' failure during financial crisis 2008.

The development of financial market has affected all players in the industry. Islamic banks are not immune from the ongoing process. Similar to their conventional counterparts, Islamic banks have been under pressure to compete within a more competitive financial market. Diversification to non-traditional areas is needed to survive in financial market.

Regulatory and supervisory bodies have played significant role to drive commercial banks business toward non-traditional activities. For instance, Bank Negara Malaysia (BNM) has encouraged Malaysian Islamic banks to engage in investment banking activities (Bank Negara Malaysia, 2006). It views the activities as unexploited areas that offer a number of benefits to Islamic banking sector.

The study of Shahimi et al. (2006), so far is the only empirical work that analyses non-traditional activities of Islamic banks. The findings of study are as follows: (1) size is an important variable to determine the fee-based income, in other words larger bank has more ability to get benefit from fee-based income., (2) credit risk and fee based income have negative relationship, meanwhile capital risk and fee based income have positive relationship. Based on those two relationships, it suggests that non-traditional activities tend to reduce risks and relatively safer for Islamic banks.

3. Data and Methodology

The present study selects commercial banks from ASEAN-5 countries namely Indonesia, Malaysia, Thailand, Singapore, Philippine. Moreover, commercial bank is defined as depository intermediaries that collect deposits from public. With that in mind, other types of bank namely, merchant banks and investment banks are excluded from the sample size. All data are collected from Bankscope.

To achieve the first research objective, several bank-specific variables would be used to explain non-interest income of commercial banks. Non-interest income ratio is the product of non-interest income divided by operating income and it has frequently used as a proxy to represent the level of non-traditional activities at commercial banks (Rogers & Sinkey, 1999).

$$NII_{it} = \beta_1 + \delta_0 ISLAMIC + \delta_1 CRISIS + \delta_2 ISLAMIC * CRISIS + \beta_2 \ln OBSA_{it} + B_3 \ln TA_{it} + \beta_4 \mathrm{NIM_{it}} + \beta_5 PERSONNEL_{it} + \beta_6 \mathrm{DEPOSITS_{it}} + u_{it}$$

A number of independent variables would be used to explain the degree of non-interest income of commercial banks namely off-balance sheets activities (OBSA), total assets, net interest margin, core deposits, personnel expenses. Off-balance sheets activities are commercial banks financial activities that are not recorded in the balance sheets (Sinkey, 2002). Incomes from OBSA, notably derivatives, fee based activities, and securitization contribute to the non interest income level (Sinkey, 2002). Hence, we expect that non-interest income and OBSA are positively correlated.

Net interest margin (NIM) is an important explanatory variable due to its representation of net interest income. Given the expected diversification gains from non-traditional activities, NIM is used to examine how the diversification gains can be achieved. We expect a negative correlation between NIM and NII. Personnel expenses to total non-interest expenses ratio (PERSONNEL) is included as independent variable to observe the relationship between commercial banks spending on salary to the level of non-interest income. According to DeYoung & Roland (2001), diversification to non-traditional activities requires more allocation for employees' salary. Given the non-traditional activities are considered as a new area, more staffs and expertise are needed. Based on this proposition, we expect personnel expenses and non-interest income are positively correlated. Another explanatory variable is DEPOSITS which represent the main

source of funds for commercial banks. Shahimi et al. (2006) suggests NII and DEPOSITS might be negatively correlated. It is due to in the context of non-traditional activities, commercial banks can generate income without relying on the balance sheets funding (Shahimi et al., 2006). In addition, bank-specific variable which is natural logarithm of total assets (lnTA) is included as a control variable.

We run the regression on the impact of shock to different types of bank namely Islamic and conventional banks. Dummy year (CRISIS), dummy for banks type (ISLAMIC) and an interaction term between CRISIS and ISLAMIC are added to the initial econometric model.

4. Findings and Discussion

We manage to collect the data of 136 commercial banks in ASEAN-5 countries. Our aim is to get data of banks for the period of 2004-2012. However, some banks do not have complete nine years data. We decide to include banks with less than nine years observations as long as it does not less than four years data.

With respect to the samples of Islamic banks, twenty out of 136 are commercial Islamic banks. This categorisation (conventional and Islamic banks) is meant to see how these two banks differ in terms of non-traditional activities and particularly during the global financial crisis.

Prior running the panel regression method, we sort out the data to find the outliers especially within the NII ratio. Some irregularities were found in the form of negative value and more than 100 percent value. To avoid disruption in the findings we do not include outliers in the data set. Having clean up the outliers, the next step is to check the correlation amongst variables. From the correlation table we can see that some variables have positive correlation with NII ratio while some others have negative one. lnTA and lnOBSA show positive correlation while NIM, DEPOSITS and PERSONNEL have negative correlation.

Table 1. Correlation Analysis

	NII	lnOBSA	lnTA	NIM	DEPOSITS	PERSONNEL
NII	1.000					
lnOBSA	0.105	1.0000				
lnTA	0.128	0.812	1.0000			
NIM	-0.367	-0.296	-0.290	1.0000		
DEPOSITS	0.160	0.058	0.099	-0.063	1.0000	
PERSONNEL	-0.116	0.027	-0.007	0.039	0.018	1.0000

We analyse the econometric models using three panel estimation methods namely pooled-ordinary least square (OLS), fixed effects and random effects[*]. To choose between pooled-OLS and random effects, the Breusch and Pagan Lagrangian Multiplier (LM) test is used. The result of LM test suggests the random effects method is preferred. Moreover, to select between random effects and fixed effects, the Hausman test is employed. The result of Hausman test suggests that the random effects method is preferred. Additionally to deal with serial correlation and heteroskedasticity problems we manage to get coefficients of estimates with robust standard error.

In model 1, all explanatory variables namely lnOBSA, lnTA, NIM, DEPOSITS, and PERSONNEL are included. Our main objective here is to find out the nature of relationship between explanatory variables and NII ratio without taking into consideration the type of bank and the impact of global financial crisis. The results of random effects model suggest two independent variables namely NIM and PERSONNEL are negative and statistically significant. The coefficient of NIM can be interpreted that a percent increase in NIM is associated with a decrease in NII ratio by 2.77 percentage point. Meanwhile, a percentage point increase PERSONNEL decreases non-interest income ratio by 2.57 percentage points.

The negative coefficient of NIM informs an inverse relation between traditional and non-traditional activities of commercial banks. Therefore, it implies that commercial banks in ASEAN-5 countries benefit from the diversification to non-traditional financial services. In other words, they earn diversification gains. Unlike our prior expectation, the negative coefficient of PERSONNEL is counterintuitive. However the

[*] In the fixed effects method, dummy Islamic is not included in the model.

result is not surprising as the development in banking industry namely information and communication technology (ICT) and outsourcing might contribute to the negative linkage between personnel expenses and non-interest income.

The advancement in ICT has transformed business processes in many sectors including banking industry. The technology has helped commercial banks to streamline faster and more reliable financial transactions. Another development in banking industry is the transfer of a number of functions to the other parties which is known as outsourcing. Stiff competition in financial industry has pushed commercial banks not only to search other sources of revenues but also a more efficient method to deal with an increasing in operating costs. Outsourcing offers a more flexible way to transfer operational functions to other firms that specialise in the area. Technically, commercial banks can benefit from transforming fixed costs to variable costs. Hence, in the long run, commercial banks might be more competitive and efficient.

In model 2 we include all explanatory variables plus one dummy variable (ISLAMIC). In this model, we emphasize on the practice of non-traditional activities of Islamic and conventional banks in ASEAN-5 countries. The magnitudes of coefficient estimates are not too different from the results of model 1. Two explanatory variables namely NIM and PERSONNEL and the dummy variable (ISLAMIC) are negative and statistically significant.

With respect to the coefficient estimate of the dummy variable (ISLAMIC), Islamic banks earn lower non-traditional income than conventional banks. The different is significant as Islamic banks on average earn non-traditional income lower by 10.3 percentage point compared to conventional banks. Size and technology might explain the finding. Previous studies suggest size and non-traditional activities have a positive relation. The relation can be explained by the concept of economies of scope in which firm's average cost decreases when it produces variety of products. In the context of non-traditional activities, big size banks can earn more benefits particularly from lower average total cost and greater revenues. Unfortunately, Islamic banks on average have smaller size than conventional banks. It implies that Islamic banks are in a disadvantage position to compete with their conventional peers. Meanwhile, technology also plays critical role in explaining non-traditional activities.

To cater diverse financial services, conventional banks need to adopt an advanced ICT. However, investment in technology is expensive particularly for small banks. In this regard, Islamic banks have little room to manoeuvre in competing with bigger rivals. As a matter of fact many Islamic banks in the region are subsidiaries of conventional banks. Given this position many of their functions including ICT are still attached to their parents.

In model 3, we intend to investigate the impact of the 2008 global financial crisis on non-traditional activities of commercial banks in ASEAN-5 countries. Similar to the results of model 1 and model 2, the coefficient estimates of NIM and PERSONNEL are negative and statistically significant. Meanwhile the coefficient of dummy variable (CRISIS) is negative and statistically significant. The magnitude of the coefficient can be interpreted that during the 2008 global financial crisis, commercial banks in ASEAN-5 countries earned lesser non-interest income by 4.18 percentage point compared to the other periods of observation (2004-2007 and 2009-2012). This result informs on the interconnection of global financial markets. The impacts of global financial crisis which began in USA were widely spread across the border. It provoked massive panic in financial markets worldwide. Moreover, people and investors lost confident in the stability of the market and economy. As a result a number of giant financial institutions collapsed which pushed governments to inject trillion dollars bail-out funds. Given the interconnectedness of global financial market, banking industry in other regions also experienced declining in revenues. Lower non-traditional revenues confirm that commercial banks in ASEAN-5 countries were badly affected by the global financial crisis.

In the model 4 apart from explanatory variables we include two dummy variables (ISLAMIC and CRISIS) and one interaction term (ISLAMIC*CRISIS). Our objective here is to investigate non-traditional activities of conventional and Islamic banks during the 2008 global financial crisis. As we can see in the last column of table 2, the interaction is negative but statistically insignificant. In view of this, we are unable to obtain solid evidence that non-traditional activities of Islamic and conventional banks are significantly different during the 2008 global financial crisis.

Table 2. Banks characteristics and non-traditional activities Random Effects Estimation
Dependent variable: non-interest income/gross income (NII)

Independent Variable	Model 1	Model 2	Model 3	Model 4
lnOBSA	-0.574	-0.543	-0.461	-0.439
	(0.369)	(0.373)	(0.359)	(0.366)
lnTA	0.885	0.742	0.645	0.511
	(0.717)	(0.707)	(0.707)	(0.712)
NIM	-2.770***	-2.842***	-2.748***	-2.834***
	(0.469)	(0.471)	(0.469)	(0.473)
DEPOSITS	0.158	0.020	0.212	0.076
	(1.840)	(1.952)	(1.770)	(1.865)
PERSONNEL	-2.574***	-2.280**	-2.556***	-2.230**
	(0.873)	(0.921)	(0.881)	(0.934)
ISLAMIC	-	-10.297***	-	-9.922***
		(2.449)		(2.401)
CRISIS			-4.178***	-3.784**
	-	-	(1.425)	(1.602)
ISLAMIC*CRISIS	-	-	-	-3.008
				(2.690)
Constant	30.155***	34.424***	33.527***	37.779***
	(12.806)	(12.810)	(12.794)	(12.785)
R^2	0.144	0.180	0.152	0.187
F-test (Prob > Chi^2)	0.000	0.000	0.000	0.000

Notes: robust standard errors are in parentheses. *, **, and ***, denote significant at 10, 5 and 1 percent respectively.

5. Conclusion

Financial (capital and money) markets have emerged as an important platform to help firms meet their needs of long-term as well as short term funds. Moreover, capital market system has significantly contributed to the disintermediation process in financial system. It has reduced banks' role in capital allocation process as well as their market shares. To mitigate the threat, commercial banks have actively involved in capital market investments (non-traditional activities). From the results of panel data regression we find a number of important findings. The negative coefficient of NIM informs an inverse relation between traditional and non-traditional activities of commercial banks. Therefore, it implies that commercial banks in ASEAN-5 countries benefit from the diversification to non-traditional financial services. In other words, they earn diversification gains. Unlike our prior expectation, the negative coefficient of PERSONNEL is counterintuitive. The interpretation of the result is commercial banks might utilise the existing manpower and subscribing to an updated information system to support their expansion to non-traditional activities.

With respect to the different types of banks and its relation to non-traditional activities, the finding suggests that Islamic commercial banks earn relatively lower non-interest (traditional) income compared to conventional banks. The finding is different from Beck et al., (2010) which suggests that Islamic banks earn more fees income than their conventional counterpart.

The coefficient of dummy financial crisis is negative and statistically significant. It suggests that during the global financial crisis period, commercial banks earned relatively lower non-interest income. Another implication of the finding is the interconnection of global financial markets. Although the epicentre of the 2008 crisis was in the United States of America, however, the impact is widely spreading and the magnitude

can be observed in the decreasing of non-interest income of commercial banks in ASEAN-5 countries. With regard to the interaction term, the insignificant result hinders us from obtaining meaningful information on the interaction of different types of bank, financial crisis and non-traditional activities.

Banking industry is one of industries that have spent huge funds on ICT. The reason for such measure is to cater the diversity and complexity of financial services, preserve efficiency, and meet consumers demand. The present study however does not include any explanatory variable as the proxy of technology. We could not find any indicator that can represent technology development in a country or money spent by commercial banks for technology expenses. For further study, it is recommended to include variable that represents the degree of technology adoption by commercial banks to help explaining non-traditional activities.

References

Allen, F., & Santomero, A. M. (2001). What do financial intermediaries do ? *Journal of Banking & Finance*, *25*, 271–294.

Bank Negara Malaysia. (2006). *BNM Annual Report 2005*. Kuala Lumpur.

Beck, T., Demirgüç-kunt, A., & Merrouche, O. (2010). *Islamic vs . Conventional Banking Business Model, Efficiency and Stability* (No. 5446).

Brewer III, E. (1989). Relationship Between Bank Holding Company Risk and Nonbank Activity. *Journal of Economics and Business*, *41*, 337–353.

Čihák, M., Demirgüç-Kunt, A., Peria, M. S. M., & Mohseni-cheraghlou, A. (2012). *Bank Regulation and Supervision around the World A Crisis Update* (No. 6286).

DeYoung, R., & Rice, T. (2004). Noninterest Income and Financial Performance at U.S. Commercial Banks. *The Financial Review*, *39*(1), 101–127. doi:10.1111/j.0732-8516.2004.00069.x

DeYoung, R., & Roland, K. P. (2001). Product Mix and Earnings Volatility at Commercial Banks: Evidence from a Degree of Total Leverage Model. *Journal of Financial Intermediation*, *10*(1), 54–84. doi:10.1006/jfin.2000.0305

DeYoung, R., & Torna, G. (2013). Nontraditional banking activities and bank failures during the financial crisis. *Journal of Financial Intermediation*, *22*(3), 397–421. doi:10.1016/j.jfi.2013.01.001

Edwards, F. R., & Mishkin, F. S. (1995). The Decline of Traditional Banking: Implications for Financial Stability and Regulatory Policy. *FRBNY Economic Policy Review*, (July), 27–47.

Hidayat, W. Y., Kakinaka, M., & Miyamoto, H. (2012). Bank risk and non-interest income activities in the Indonesian banking industry. *Journal of Asian Economics*, *23*, 335–343.

Ismail, A. G. (2010). *Money, Islamic Banks and the Real Economy*. Singapore: Cengage Learning Asia.

Lepetit, L., Nys, E., Rous, P., & Tarazi, A. (2008). The expansion of services in European banking: Implications for loan pricing and interest margins. *Journal of Banking & Finance*, *32*(11), 2325–2335. doi:10.1016/j.jbankfin.2007.09.025

Matthews, K., & Thompson, J. (2008). *The Economics of Banking* (2nd Editio.). West Sussex: John Wiley & Sons Ltd. Retrieved from http://as.wiley.com/WileyCDA/WileyTitle/productCd-EHEP000955.html

Mishkin, F. S. (2010). *The Economics of Money, Banking and Financial Markets (9th Edition)* (p. 756). Boston: Pearson Education, Inc.

Rajan, R. G. (2005). *Has Financial Development Made the World Riskier?* (No. 11728).

Rogers, K., & Sinkey, J. F. (1999). An analysis of nontraditional activities at U.S. commercial banks. *Review of Financial Economics*, *8*(1), 25–39. doi:10.1016/S1058-3300(99)00005-1

Shahimi, S., Ismail, A. G., & Ahmad, S. (2006). Panel Data Analysis of Fee Income Activities Islamic Banks. *Journal of King Abdulaziz University-Islamic Economics*, *19*(2), 23–35. doi:10.4197/islec.19-2.2

Sinkey, J. F. (2002). *Commercial Bank Financial Management* (Internatio.). New Jersey: Pearson Education, Inc.

Stiglitz, J. E. (2000). Capital Market Liberalization , Economic Growth , and Instability. *World Development*, *28*(6), 1075–1086.

Wall, L. D. (1987). Has bank holding companies' diversification affected their risk of failure? *Journal of Economics and Business*, *39*(4), 313–326. doi:10.1016/0148-6195(87)90025-7