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Off-Balance Sheet Activities and Performance of Commercial Banks in Malaysia

Mohd. Zaini Abd Karim and Chan Sok Gee***

This study analyzes how the off-balance sheet activities of the locally-owned commercial banks affect the banks' performance in terms of banks' exposure to various types of risks, bank's profit, and the banks' leverage. A panel data econometric regression has been done to achieve the objective. The results indicate that the relationship between the off-balance sheet activities and interest rate risk, unsystematic risk, and overall risk of the banks is insignificant. Nevertheless, the results indicate that market risk is significantly influenced by the off-balance sheet activities. In terms of banks' performance, it is found that the stock return is negatively related to off-balance sheet activities. Moreover, there is no significant relationship between off-balance sheet activities and return on equity, leverage, and liquidity ratio.

Introduction

In the past decade, the structure of the balance sheet of commercial banks has experienced an enormous change with the introduction of off-balance sheet activities in the banking operation. Factors that contributed to the growth of off-balance sheet activities over the past decade include strong competition in the established markets and deregulation of the international financial markets, that contributed to the growth of new financial instruments in risk management. Besides, technological advancement also served as a factor that affected the growth of off-balance sheet activities. In addition, the growing volatility in the financial markets as well as low margins from the on-balance sheet business also served as other factors that encouraged the commercial banks to engage in off-balance sheet activities since, investors demand high returns on their investment in the commercial banks.

It is argued that off-balance sheet activities play an important role in helping the banks to hedge their long-term financial assets in the on-balance sheet and increasing the bank's profitability, while keeping the details of these earnings off from the balance sheet of the commercial banks. This enables the banks to extend their leverage against their capital adequacy requirements and maximize the return on invested capital.

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According to Khambata (1989), engagement in the off-balance sheet activities also help to improve the commercial banks' scope of operations, and diversification of product lines and earnings. Nevertheless, according to Hassan *et al.* (1993), off-balance sheet activities such as guarantees will increase banks' risk because the bank is obligated to make payments in future under certain circumstances, which may appear to be unfavorable to the bank. Besides, off-balance sheet activities can lead to increase in credit risk because these activities provide an opportunity to increase leverage significantly without additional regulatory requirements (Bennett, 1986). In addition, off-balance sheet activities such as involvement in derivatives trading might increase interest rate and foreign exchange exposures as well as increase the volatility of the banks, which will indirectly, affect the banks' profitability in the long run.

Off-balance sheet activities have received tremendous attention since the past decade in Malaysia. However, very few studies have been done in this area, in Malaysia. This study analyzes the effect of off-balance sheet activities of the locally-owned commercial banks on the banks' performance in terms of banks' exposures to various types of risks, bank's profit, and the banks' leverage. It is a matter of concern to the banking and the regulatory community when banks inevitably raise their risk levels by moving the operations off their balance sheets without increasing the capital set-asides. Thus, a panel data regression analysis has been done in this paper to determine how off-balance sheet activities affect the risks associated with these activities. The paper also analyzes the effect of off-balance sheet activities on banks' profitability using variables such as banks' stock return and return on equity. In addition, it also analyzes the effect of off-balance sheet activities on the liquidity ratio and leverage ratio, which reflects the ability of banks in meeting their debt obligations.

Next, the paper presents the background of the off-balance sheet activities in Malaysia and their relationship with various types of risks. Then, it reviews the literature on off-balance sheet activities. Next, it explains the method used in analyzing the effects of off-balance sheet activities on commercial banks' risk, leverage and profitability. Finally, it presents the empirical results and concludes.

Background of Off-Balance Sheet Activities

The Malaysian banking system has experienced rapid growth of off-balance sheet activities since the last decade. Figure 1, presents the total amount of off-balance sheet activities in the locally-owned commercial banks in Malaysia, for the period 1995-2003. It is shown that the use of off-balance sheet activities has been growing over the years with increasing amount of money being utilized in this area. Nevertheless, the use of off-balance sheet activities decreased during the Asian financial crisis but continued to grow further, after 2000.

Nonetheless, a second preview of the growth of off-balance sheet activities in the locally-owned commercial banks in Malaysia for the period 1995-2003 found that the growth of off-balance sheet activities were rather volatile (Figure 2). Further, Figure 3 shows the growth of off-balance sheet activities and loan of the locally-owned commercial

Figure 1: Total Off-Balance Sheet Activities in Locally-Owned Commercial Banks in Malaysia from 1995-2003

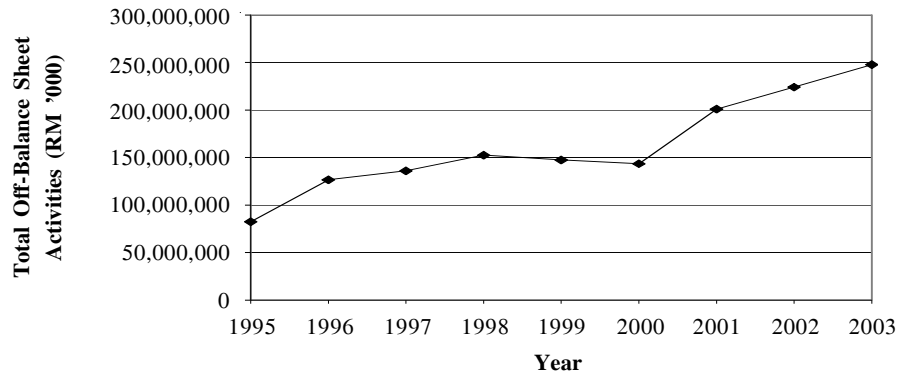


Figure 2: Percentage Growth of Off-Balance Sheet Activities in Locally-Owned Commercial Banks in Malaysia from 1995-2003

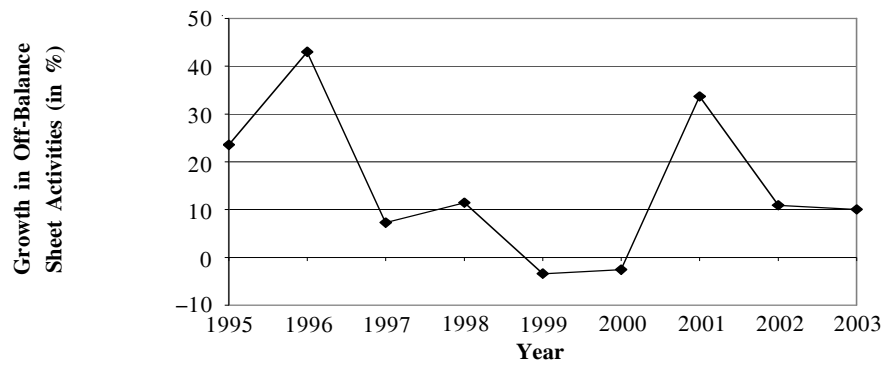
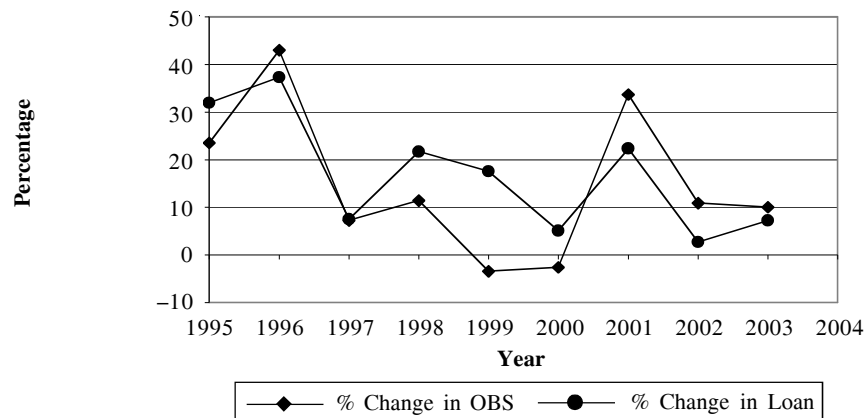


Figure 3: Percentage Growth of Off-Balance Sheet (OBS) Activities and Loan in Locally-Owned Commercial Banks in Malaysia from 1995-2003



banks in Malaysia since 1995. The figure clearly illustrates that the growth of off-balance sheet activities exceeded the growth of total loans of the locally-owned commercial banks in Malaysia during the period 1995-1997. But from 1997-2000, the growth of total loans was greater than the growth of off-balance sheets activities. This may be due to the impact of Asian financial crisis, as a result of which banks became more stringent in their investment strategies. However, the growth of off-balance sheet activities continued to exceed the growth of total loans from 2000. This clearly indicates that off-balance sheet activities became an important component in the commercial banks' operations.

Types of Off-Balance Sheet Activities and their Associated Risks

Hassan *et al.* (1993) defined off-balance sheet activities as the banking products and practices that are not reflected in the on-balance sheet portfolio. These activities earn fee income that is not recorded in the bank's balance sheet. The most common risk associated with off-balance sheet activities is credit risk. Credit risk occurs when the banks extend their credit facilities to other banks or non-banking institutions (Khambata and Hirche, 2002). Besides, an unanticipated change in the counterparties' credit standing during the life of the off-balance sheet transaction may also lead to increase of credit risk of a bank. Furthermore, the lack of information on counterparties' exposure in off-balance sheet markets might also add to the credit risk exposure of a bank. Khambata and Hirche (2002) classified the off-balance sheet activities of commercial banks into guarantees, commitments, market-related activities (financial derivatives), and advisory or management functions.

In guarantees, the bank underwrites the obligations of the third party and currently stands behind the risk (Khambata, 1989). In this context, the bank earns fee income without putting any asset or liabilities on its balance sheet and thus, this activity is considered as an off-balance sheet activity. The credit risk will appear when there is a default by the counterparty. In this case, the default by the counterparty will trigger an immediate loss that will cause the bank to acquire a substandard claim in which most of these items are direct credit substitutes.

Commitments are a major portion of the off-balance sheet activity. It is a legally binding agreement taken by a bank on a future transaction in which the bank agrees to make a loan or provide leasing finance to a borrower at a fixed rate, over a specific period of time for a particular purpose (Khambata, 1989). In this case, the bank sets aside funds to be drawn by the borrower in future date. The most common types of commitments are loan and lease commitments. Commitments bear considerable amount of risk in a volatile interest rate environment, especially when the general market conditions are declining. Such situation will reduce the quality of the bank's portfolios and also limit the bank's ability to control the quality standard of its borrowers' profiles. Credit risk arises if capital adequacy ratios are not adjusted to reflect the loan commitments to financially unstable customers (Khambata and Bagdi, 2003).

Market-related activities of a bank are more about loan participation and derivatives transaction, such as foreign exchange contracts, forwards, futures and options, swap and

credit derivatives. These activities have become the major off-balance sheet activity of large commercial banks. They do not act as a substitute for activities on the balance sheet and are less complicated and used to reduce credit risk from the on-balance sheet transactions. In market-related activities, the banks are only exposed to the probable cost of replacing the cash flow from contracts with a positive value in case of default by the counterparty and thus, they are not exposed to credit risk for the full notional amount of contract. Hence, the exposure of trading in the derivatives market depends to a large extent on the replacement cost of the contract. Meanwhile, this replacement cost varies with the maturity of the outstanding contract, the level of market interest rate and the fluctuation of exchange rates. As a result, trading in the derivatives market can be highly complicated and risky because the management is unable to accurately and precisely forecast the changes in market interest rates and exchange rates.

Apart from credit risk, other risks that exist from off-balance sheet transactions are settlement risk, liquidity risk, interest rate risk and foreign exchange risk. Khambata and Bagdi (2003) defined settlement risk as the risk of losing principal when the bank pays the funds or foreign exchange even before it is certain that it will receive the proceeds. On the other hand, liquidity risk refers to the risk in which the bank is unable to convert their assets into cash in time and at low cost to meet their financial obligations, customer demand for loans, as well as sudden withdrawal of funds. As a result, the bank have to rely on higher costs of funding from the money market borrowing and offer a higher interest to their depositors in order to obtain more funds in meeting their financial obligations. This can be extremely costly for the bank because this will increase the interest expenses of the bank and squeeze the bank's profit. In addition, the bank may also face fluctuation in interest rate when the bank engages itself in transactions in derivatives market. In this case, the bank as a market-maker will increase its interest rate risk and credit exposure.

Finally, the off-balance sheet transaction may also cause an increase in the bank's foreign exchange exposures. The derivatives instrument may reduce or rise with exposure to changes in exchange rate.

Review of Literature

Study on off-balance sheet activities of banks can be divided into two categories: its effect on risk and its effect on revenue and profit. Boyd and Graham (1986) examined the risks associated with diversification of banks into non-bank activities for the period 1971-1983. His study found no significant relationship between non-bank activities and risk. However, non-bank activities were positively related to the risk of the banks during the period 1971-1977. He highlighted that the level of association between risk of failure and non-bank activities increases when there is no tight regulation on non-bank activities. As a result, the positive relationship between the two variables disappears when there are more stringent rules and regulations.

Hassan (1993) examined the relationship between off-balance sheet activities and market risk of large commercial banks of the United States. He found that off-balance sheet activities contribute to the overall diversification of the bank portfolio risk by reducing the

total risk. Nevertheless, off-balance sheet items do not influence the systematic risk of banks and this may be due to the reason that off-balance sheet items are not a concern of well-diversified stockholders. Chaudhry (1994) investigated the impact of off-balance sheet activities on commercial banks' exposure to market-based risk in the United States by utilizing a two-stage model. He found that larger banks are more efficient in interest rate risk management process as compared to the smaller ones.

Khambata and Hirche (2002) compared the Japanese banks with the United States and European banks. They found similar results that, the loan commitments are the largest source of credit risk among the traditional off-balance sheet instruments. In addition, they found that the Japanese banks used fewer off-balance sheet instruments as compared to the banks in the United States and Europe, indicating that Japanese banks are more conservative and risk averse as compared to the American and European banks.

Besides focus on the impact of off-balance sheet items on various types of risks, the study of off-balance sheet items was also extended to the volatility of bank revenue and profit. Stiroh (2004) found that bank's non-interest income is more volatile than the traditional income and there is little evidence of diversification effects of non-interest income on bank's revenue and profit, even though there is a correlation between the growth rates of net interest income and non-interest income. Finally, he found that non-interest income activities and risk-adjusted profits are not related.

In addition to the analysis done on the risks associated with the off-balance sheet activities, empirical investigation has also been done on the changing patterns of the structure of banks' income with the inclusion of off-balance sheet activities. Davis and Tuori (2000) analyzed the structure of banks' income in Organization for Economic Cooperation and Development (OECD) countries for the period 1979-1995, using data on bank profitability. They found evidence of changes in the income structure from interest income to non-interest income, with rapid growth of off-balance sheet activities in most of the European Union countries. In addition, their results indicate that larger banks tend to maintain high levels of non-interest income.

Methodology and Data

The effect of off-balance sheet activities on the performance of the locally-owned commercial banks in Malaysia can be analyzed from three main aspects, namely the banks' risk, the banks' profitability and the banks' liquidity in meeting their debt obligations.

Panel data approach is used in this study. Wooldridge (2000) defines panel data as the data that has both cross-sectional and time-series dimension. In other words, panel data is a set of data from a number of observations overtime, on a number of cross-sectional units. In this study, the cross-sectional units are the locally-owned commercial banks in Malaysia.

First, the impact of off-balance sheet activities on the risks of the locally-owned commercial banks is evaluated by investigating the impact of off-balance sheet activities

on banks' market risk, systematic risk, unsystematic risk and the total risk. The market risk measures the change in financial loss resulting from the decline in market prices due to trading activities. Since banks deal with products such as foreign exchange and other interest rate products to hedge their on-balance sheet liabilities against risks, this risk is directly related to the off-balance sheet activities. Besides market risk, it is vital to examine the impact of off-balance sheet activities on systematic, unsystematic as well as overall risk in order to determine whether the off-balance sheet activities help the bank to hedge their market position or they have an adverse effect on the banking operations.

The two-factor market model with a market factor and interest rate factor is applied since studies by Kwan (1991); Flannery and James (1994); and Mohanty and Song (2002) suggest that the deposit-taking institutions' stock returns are closely related to both, market and interest rate factor. Thus, the following return-generating process is assumed for each bank:

$$R_{i,t} = \alpha_i + \beta_{im}R_{m,t} + \beta_{ii}I_t + \varepsilon_{i,t} \quad \dots(1)$$

where,

$R_{i,t}$ = return of security i at time t ;

$R_{m,t}$ = return on a market index in Malaysia at time t , and;

I_t = change in interest rate on a long-term government bond of Malaysia at time t .

Data for individual security, market index and interest rate on long-term government bond of Malaysia were obtained from Datastream. Based on the result obtained from Equation 1, β_m is used as a proxy for market risk, which represents the systematic risk that measures the security's sensitivity to market-wide events. On the other hand, the coefficient for interest rate (β_i) is utilized as a proxy for the systematic interest rate risk incurred by the commercial banks; the standard deviation of the error term is used as the proxy of bank's unsystematic risk and the standard deviation of stock return as the measure of the bank's total risk because standard deviation measures volatility of stock return as a whole.

The empirical model given by Equation 2 is employed in analyzing the effect of off-balance sheet activities on the bank's leverage.

$$Risk_{it} = \alpha + \beta_1 OBS_{it} + \beta_2 TLTA_{it} + \beta_3 LTA_{it} + \beta_4 EA_{it} + \beta_5 FATA_{it} + \beta_6 LIQ_{it} + \beta_7 PLTA_{it} + \varepsilon_{it} \quad \dots(2)$$

where,

$Risk_{it}$ = one of the four risks measures of the i^{th} bank at time t

OBS_{it} = off-balance sheet activities, which includes commitments, guarantees and trading income of the i^{th} bank at time t

$TLTA_{it}$ = ratio of total loans to total assets of the i^{th} bank at time t

LTA_{it} = natural logarithm of total assets of the i^{th} bank at time t

EA_{it} = shareholder's equity to total assets of the i^{th} bank at time t

$FATA_{it}$ = fixed asset to total assets of the i^{th} bank at time t

LIQ_{it} = liquid assets to total assets of the i^{th} bank at time t

$PLTA_{it}$ = ratio of the provision for loan losses to total assets of the i^{th} bank at time t

ε_{it} = random error term

The data employed in this model are obtained from the estimation of Equation 1 as well as from the banks' annual report for the period 1995-2003. The variables used as control variables in the model are: $TLTA$, LTA , EA , $FATA$, LIQ , and $PLTA$. The function of each control variable is listed in Table 1.

Table 1: Function of the Control Variables	
Control Variable	Function
$TLTA$	To control the impact of loans on risk
LTA	To control for firm size
EA	To control for financial leverage
$FATA$	To control for operating leverage and liquidity of asset portfolio
LIQ	To control for bank's liquidity
$PLTA$	To control for credit risk of banks

Secondly, the effect of off-balance sheet activities on the profitability ratios of the locally-owned commercial banks is examined by investigating the impact of off-balance sheet activities on banks' stock return and return on equity. The average yearly stock return is used as a proxy of banks' stock return and the return on equity is computed by dividing pre-tax profit by total equity. The empirical model given by Equation 3 is estimated to analyze the effect of off-balance sheet activities on banks' profitability.

$$Profit_{it} = \alpha + \beta_1 OBS_{it} + \beta_2 TLTA_{it} + \beta_3 LTA_{it} + \beta_4 EA_{it} + \beta_5 FATA_{it} + \beta_6 LIQ_{it} + \beta_7 PLTA_{it} + \varepsilon_{it} \dots (3)$$

where,

$Profit_{it}$ = one of the four profitability measures of the i^{th} bank at time t

OBS_{it} = off-balance sheet activities, which includes the commitments, guarantees and trading income of the i^{th} bank at time t

$TLTA_{it}$ = ratio of total loans to total assets of the i^{th} bank at time t

LTA_{it} = natural logarithm of total assets of the i^{th} bank at time t

EA_{it} = shareholder's equity to total assets of the i^{th} bank at time t

$FATA_{it}$ = fixed asset to total assets of the i^{th} bank at time t

LIQ_{it} = liquid assets to total assets of the i^{th} bank at time t

$PLTA_{it}$ = ratio of the provision for loan losses to total assets of the i^{th} bank at time t

ε_{it} = random error term

Finally, the effect of off-balance sheet activities on liquidity and leverage ratio of locally-owned commercial banks is examined by investigating the impact of off-balance sheet activities on banks' current and liquidity ratio. The liquid asset ratio is used to measure the liquidity of the banks. It is computed by dividing total liquid assets by total liabilities. To measure bank's leverage, debt to equity ratio is calculated by dividing total liabilities by shareholders' equity. The empirical model given by Equation 4 is employed to analyze the effect of off-balance sheet activities on banks' liquidity.

$$LR_{it} = \alpha + \beta_1 OBS_{it} + \beta_2 TLTA_{it} + \beta_3 LTA_{it} + \beta_4 EA_{it} + \beta_5 FATA_{it} + \beta_6 LIQ_{it} + \beta_7 PLTA_{it} + \varepsilon_{it} \quad \dots(4)$$

where,

LR_{it} = one of the two leverage measure of the i^{th} bank at time t

OBS_{it} = off balance sheet activities, which includes the commitments, guarantees and trading income of the i^{th} bank at time t

$TLTA_{it}$ = ratio of total loans to total assets of the i^{th} bank at time t

LTA_{it} = natural logarithm of total assets of the i^{th} bank at time t

EA_{it} = shareholder's equity to total assets of the i^{th} bank at time t

$FATA_{it}$ = fixed asset to total assets of the i^{th} bank at time t

LIQ_{it} = liquid assets to total assets of the i^{th} bank at time t

$PLTA_{it}$ = ratio of the provision for loan losses to total assets of the i^{th} bank at time t

ε_{it} = a random error term

Both, fixed effects and random effects models are estimated. The fixed effect model assumes that the idiosyncratic error, u_{it} , is independent from the exogenous variables across all time periods (Wooldridge, 2000). In this context, the fixed effects estimator permits for arbitrary correlation between the unobserved effects and the independent variables in any time period.

On the other hand, the random effects model is used with the assumption that the unobserved effect is uncorrelated with the explanatory variables (Wooldridge, 2000). The random effects estimator is inconsistent if the error term and the regressors are correlated. Therefore, the Hausman (1978) test is used to determine if there is any correlation between the explanatory variables and the error term. If such a relationship exists then the fixed effect model is said to be appropriate.

Empirical Results

Hausman Test

The Hausman test is used to determine whether fixed effect is more appropriate or random effect. The results of Hausman test (Table 2) indicates that the null hypothesis, that individual effects are

uncorrelated with the regressors, can be rejected for the model of market risk and liquidity ratio. Hence, the fixed effect model is said to be appropriate for equations involving market risk and liquidity ratio, while results of the random effect model are reported in other cases.

Off-Balance Sheet Activities and the Risks of Locally-Owned Commercial Banks

The results in Table 3 indicate that the off-balance sheet activities are negatively related to total risk and unsystematic risk, and positively related to interest rate risk of the banks. However, the impact of off-balance sheet

Table 2: Hausman Test		
Variable	Hausman Test	p-value
Total risk	3.47	0.84
Interest rate risk	6.75	0.46
Market risk	30.71**	0.00
Unsystematic risk	5.00	0.66
Banks' stock return	6.37	0.50
Return on equity	2.95	0.89
Debt to equity ratio	3.25	0.78
Liquidity ratio	93.59**	0.00
Note: ** implies significance at 5%.		

Table 3: Results of Panel Data Estimation of the Effect of Off-Balance Sheet Activities on Various Types of Risks								
Variables	Total Risk		Interest Rate Risk		Market Risk		Unsystematic Risk	
	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
C	0.2670	1.2420	0.1658	0.1130	–	–	0.2549	2.2770**
OBS	–0.0166	–0.8030	0.0478	0.3380	0.2000	1.7160*	–0.0023	–0.1950
TLTA	0.1036	2.3540**	–0.1284	–0.4290	0.0763	0.2740	0.0379	1.5930
LTA	0.0085	0.3860	–0.0582	–0.3880	–0.1147	–0.9650	–0.0077	–0.6090
EA	–0.3956	–1.2920	1.3088	0.6280	1.8579	1.0000	–0.2377	–1.4360
FATA	0.4277	1.6330	–0.8886	–0.4980	–1.0738	–0.6480	0.2501	1.7890*
LIQ	–0.1275	–1.2520	–0.2814	–0.4060	–0.9439	–1.5510	–0.0403	–0.7210
PLTA	–0.0002	–3.2660**	–0.0001	–0.2380	–0.0008	–2.1340**	–0.0001	–2.3110**
Note: * and ** imply significance at 10% and 5% respectively.								

activities is statistically not significant in all these cases. On the other hand, the coefficient of off-balance sheet activities in the market risk equation is positive and significant.

Thus overall, the impact of off-balance sheet activities on the various types of risks is insignificant except for market risk. This may be due to the reason that the off-balance sheet activities are not the main source of funds for the locally-owned commercial banks, as the use of off-balance sheet items is still in its emerging phase.

Off-Balance Sheet Activities and Profitability of Locally-Owned Commercial Banks

The effect of off-balance sheet activities on the profitability ratios of the locally-owned commercial banks is studied by investigating the impact of off-balance sheet activities

on banks' stock return and return on equity. The average yearly stock return is used as a proxy of banks' stock return and the return on equity is calculated by dividing pre-tax profit by total equity. The results of the estimation are presented in Table 4. The results indicate that the off-balance sheet activities are negatively and significantly related to the stock return of the banks. This indicates that the engagement in off-balance sheet activities will reduce the banks' stock return. This may be due to the reason that most of the off-balance sheet activities are used to hedge against the interest rate exposure faced by the banks. As banks successfully use the off-balance sheet items to hedge against the interest rate exposure, this will decrease the interest rate premium paid to the investors and hence, the investors should expect lower returns on bank stock. This is consistent with the argument given by Brewer *et al.* (1996).

Table 4: Results of Panel Data Estimation of the Effect of Off-Balance Sheet Activities on Banks' Profitability Ratios				
Variables	Banks' Stock Return		Return on Equity	
	Coefficient	t-ratio	Coefficient	t-ratio
C	-0.0278	0.246	-19.1059	-1.0220
<i>OBS</i>	-0.0295	-2.345**	2.5614	1.3820
<i>TLTA</i>	-0.0082	-0.335	-5.6288	-1.4550
<i>LTA</i>	0.0274	1.992**	-1.3017	-0.6580
<i>EA</i>	-0.0351	-0.207	70.6689	2.6210**
<i>FATA</i>	0.0409	0.286	-54.1990	-2.3590**
<i>LIQ</i>	0.0046	0.079	-11.0821	-1.2300
<i>PLTA</i>	-0.0000	-0.863	0.0001	0.0110
Note: ** implies significance at 5%.				

On the other hand, the impact of off-balance sheet activities does not significantly affect the return on equity of the locally-owned commercial banks. Hence, these activities do not affect the ability of the banks to generate return given the resources provided by its stockholders.

Off-Balance Sheet Activities and the Leverage of Locally-Owned Commercial Banks

The effect of off-balance sheet activities on the liquidity and leverage ratio of the locally-owned commercial banks is investigated by studying the impact of off-balance sheet activities on the banks' liquidity ratio. The liquid asset ratio is employed to measure the liquidity of the banks, while the debt to equity ratio is used to measure the banks' leverage. Results in Table 5 indicate that the off-balance sheet activities do not have a significant impact on the banks' leverage ratios in term of debt to equity and liquidity ratio. This might be due to the reason that off-balance sheet activities are not widely used in banking operations in Malaysia.

Table 5: Results of Panel Data Estimation of the Effect of Off-Balance Sheet Activities on Banks' Leverage Ratios				
Variables	Debt to Equity Ratio		Liquidity Ratio	
	Coefficient	t-ratio	Coefficient	t-ratio
C	167.7732	0.9430	–	–
<i>OBS</i>	–29.9176	–1.5190	0.0183	0.8460
<i>TLTA</i>	110.0368	3.1240**	0.2542	5.8760**
<i>LTA</i>	19.9949	0.9780	0.0143	0.6450
<i>EA</i>	–865.3570	–3.2930**	0.4156	1.2110
<i>FATA</i>	766.0836	3.2700**	0.2981	0.9710
<i>PLTA</i>	–0.0035	–0.0450	0.0000	–0.1620
Note: ** implies significance at 5%.				

Conclusion

This study analyzes the effect of off-balance sheet activities of locally-owned commercial banks, on the banks' performance in terms of banks' exposures to various types of risks, banks' profit, and the banks' leverage, using a panel data regression model.

The results indicate that the relationship between off-balance sheet activities and total risk, interest rate risk, and unsystematic risk of the banks are insignificant. The results are consistent with Boyd and Graham's (1986) study that found that there is no significant relationship between risk failure of banks and the non-banking activities. They argued that relationship between non-banking activities and risk disappear when there are more stringent rules and regulations. Since Malaysian Government has tightened up banking policy, since Asian financial crisis in 1998, it is not unusual that the off-balance sheet activities play a relatively limited role in influencing the various types of risks in the banking operation. The results are also consistent with Hassan's (1993) study who found that the off-balance sheet activities do not affect the systematic risk of the banks since the off-balance sheet items are not a concern for well-diversified stockholders. Nevertheless, the results indicate that market risk is significantly influenced by the off-balance sheet activities. The higher the transactions of off-balance sheet activities the higher is the market risk. This may be due to the reason that the off-balance sheet activities deal with products such as foreign exchange, futures trading and other interest rates products. Hence, this risk is directly related to the off-balance sheet activities. Since, there is a positive relationship between market risk and off-balance sheet activities, the bankers should monitor the use of off-balance sheet activities in order to minimize market risk, while enjoying the returns contributed by the off-balance sheet activities.

In terms of banks' performance, it is found that stock return is negatively related to off-balance sheet activities. This may be due to the reason that most of the

off-balance sheet activities are used to hedge against the interest rate exposure faced by the banks. As banks successfully use the off-balance sheet items to hedge against the interest rate exposure, this decreases the interest rate premium paid to the investors and hence, investors should expect lower returns on bank stock. This is consistent with the argument by Brewer *et al.* (1996). Therefore, the bank holding companies have to closely monitor their stock return in order to minimize the negative effect of the off-balance sheet items on the stock returns. However, there is no significant relationship between the off-balance sheet activities and the return on equity. This is consistent with Stiroh's (2004) study that found little evidence of diversification effects of non-interest income on bank revenue and profit. Lastly, the results also indicate that there is no significant relationship between off-balance sheet activities and debt to equity ratio and liquidity ratio. ❖

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