

# THE EFFECTS OF FOREIGN BANK ENTRY ON FINANCIAL PERFORMANCE OF DOMESTIC-OWNED BANKS IN GHANA

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## ABSTRACT

*This article empirically examines the effects of foreign bank entry on the financial performance of Merchant Bank Ghana Limited (MBG) and Ghana Commercial Bank Limited (GCB) in Ghana from 1975 to 2008. The most consistent result from the pooled regression was that foreign bank entry increased domestic banks' return on assets for the period 1992-2008; a period with a high influx of foreign banks into Ghana. This result supports studies by Beck, Demirgüç-Kunt, and Levine (2006) and Boldrin and Levine (2009) that found foreign bank entry improved domestic banks' profitability margins. In addition, liquidity had a relatively larger multiplier effect on domestic banks' return on assets for the period 1975-1991 than any other independent variables in the study. The presence of foreign-owned banks was not detrimental to the financial performance of domestic-owned banks in Ghana.*

**JEL:** E4; F2; G28

**KEYWORDS:** Capital Adequacy Ratio, Emerging Market Economies (EMEs), Foreign Bank Entry, Domestic-owned Banks, Liquidity, Pooled Regression Analysis, Return on Assets.

## INTRODUCTION

The entry of foreign owned banks to operate banking services in emerging market economies (EMEs) is not a new global phenomenon (Domanski, 2005). The entry of foreign owned banks into the domestic banking market of EMEs increases the financial performance of the indigenous banking industry (Beck, Demirgüç-Kunt, & Levine, 2006; Boldrin & Levine, 2009). The World Bank's policies encouraged competition as increased competition tends to reduce operating costs that result in increase in profits (Demirgüç-Kunt & Levine, 2008).

The decision by EMEs to allow increased international financial competition could be explained by the standard theories of financial liberalization and technology spillover (Gormley, 2007; Stein, 2010). The entry of foreign banks has affected financial performance of the domestic-owned banks in Ghana (Boldrin & Levine, 2009; Buchs & Mathisen, 2005; Kalluru & Bhat, 2009). The banking problems and benefits resulting from foreign bank entry on the financial performance of domestic-owned banks depends largely on the country in question (Briones & Villela, 2006).

This study closes the gap in the empirical literature by examining foreign bank entry on the financial performance or profitable operations of domestic-owned banks in Ghana. Foreign-owned bank entry on domestic-owned banks was modeled by using a generalized banking operating efficiency function. To analyze the effects of foreign bank entry on the financial performance of domestic-owned banks in Ghana, a bank profitability model using capital adequacy, liquidity, and a foreign-bank entry dummy variable is employed (Derviz & Podpiera, 2008; Girard, Nolan, & Pondillo, 2010). This study has three main objectives: First, it tries to find a significant relationship between capital adequacy, liquidity, and a foreign-bank entry dummy on the return on assets (ROA) of two domestic-owned banks in Ghana, Merchant Bank Ghana Limited (MBG) and Ghana Commercial Bank Ghana Limited (GCB), from 1975 to 1991. This period marked limited entry of foreign banks into Ghana with foreign banks accounting for 33% of the banks in Ghana (PricewaterhouseCoopers, 2009).

Second, we try to find significant relationship between capital adequacy, liquidity, and a foreign-bank entry dummy on the ROA of the two domestic banks from 1992 to 2008. This period is characterized by a high influx of foreign-owned banks into Ghanaian banking system. This period involved a net increase of 16 banks, 10 or 63% of banks in Ghana were foreign-owned (PricewaterhouseCoopers, 2009).

Third, we attempt to find a significant relationship between capital adequacy, liquidity, and a foreign-bank entry dummy on the ROA of the domestic banks from 1975 to 2008. This period marked the cumulative effect of the sub-periods: before (1975-1991) and during (1992-2008) the entry of foreign-owned banks into Ghana. Domestic-owned banks in EMEs, including Ghana, have to compete with foreign-owned banks for creditworthy domestic clients (Goldberg, 2009), which affected the performance of domestic banks in terms of ROA, liquidity, and capital adequacy (Derviz & Podpiera, 2008).

The rest of the article is organized as follows. First we review the literature on the entry of banks owned by foreigners on the banking industry of EMEs (Giannetti & Ongena, 2009). The next section presents data sources, sampling procedure, and modeling techniques for the article. This is followed by the empirical estimation and analysis of the results section. Last is a summary and recommendations section.

## REVIEW OF EMPIRICAL LITERATURE

A large body of evidence examines the relationship between the entry of banks owned by foreigners and the effects of entry on the financial performance of indigenous banks in EMEs (Giannetti & Ongena, 2009). EMEs are countries reforming their economies from centrally controlled to market-oriented and offer avenues for foreign investments through FDI, banking, and ready markets for foreign technology (Demirgüç-Kunt & Levine, 2008). The increase in participation of foreign banks in the banking sector of EMEs in the early 1990s was because of financial integration (Giannetti & Ongena, 2009; Stein, 2010) and technology spillover (Gormley, 2007). Financial integration caused by significant financial market liberalization and elimination of barriers that previously restricted the entry of foreign banks led to the entry of foreign banks (Domanski, 2005; Maudos & Solis, 2007; Stein, 2010). In some Central Eastern European (CEE) countries in the 1990s, according to Domanski (2005), foreign banks had a majority ownership, as measured by the assets, of the banking sector.

The entry of banks owned by foreigners into the banking system of EMEs has benefits and costs. Various authors have summarized the benefits World Bank ascribed to foreign-owned bank entry. First, the entry of foreign owned banks into the domestic banking market of EMEs increases the financial performance of the indigenous banking sector (Demirgüç-Kunt & Levine, 2008). The World Bank's policies encouraged competition because increased competition tends to force banks to reduce operating costs resulting in increased profits (Demirgüç-Kunt & Levine, 2008). Second, the assumption is that both foreign-owned and domestic-owned banks would make credit available to small business owners or private sectors of the economy because the banks are competing for a bigger market share leading to economic growth (Beck, Demirgüç-Kunt, & Levine, 2006; Clarke, Cull, Martinez-Peria, & Sanchez, 2003).

Third, foreign-owned bank entry improves supervision of the indigenous banking system and increases banking openness (Demirgüç-Kunt, Detragiache, & Tressel, 2006). Last, is the expectation that banks owned by foreigners, will provide stability in times of crisis by offering credit to the domestic economy because their parent banks have access to funding from global financial markets. Domestic financial markets will benefit because the foreign banks will not leave for their countries during financial crisis leading to economic and financial stabilization of the EMEs (Balasubramanian, 2009).

The entry of foreign-owned banks leads to financial benefits to the host countries because of technology spillover (Gormley, 2007). According to Gormley (2007), foreign-owned bank entry leads to the introduction of banking technology and financial innovations previously unknown to indigenous banks.

These are beneficial to domestic banks because management teams of domestic-owned banks could adopt these innovations and technology to improve the operations of their banks (Gormley, 2007).

Foreign banks may also help improve the management of domestic banks by participating in mergers and acquisitions or joint ventures (Bhaumik & Gelb, 2005). This may lead to managerial improvement and efficiency because the management teams of the foreign banks would be managing the new entities (Bhaumik & Gelb, 2005). Foreign bank entry may also lead to the development, improvement in supervision, and legal framework of the domestic banking sector (Kalluru & Bhat, 2009). This is because banks owned by foreigners may demand improvement in the domestic banking industry from the regulatory authorities as a condition for entering the domestic banking system (Kalluru & Bhat, 2009).

The entry of banks owned by foreigners is useful to the indigenous banking sector because it leads to improvement in the local financial system through new technology and buildings (Gormley, 2007). It leads also to local banks learning from the banks owned by foreigners about good banking practices, and the transfer of expertise to the local banking system (Qin & Liu, 2008). Finally, foreign bank entry leads to the attraction of foreign direct investments (FDIs), which leads to economic growth of EMEs (Asiedu, 2006). FDI is useful for funding domestic income-producing projects, which leads to diversification and capital growth (Asiedu, 2006).

Claessens, Van Horen, Gurcanlar, and Mercado (2008) examined the relationship between entry of banks owned by foreigners and financial stability of the EMEs finding that banks owned by foreigners enter EMEs that have financial stability. Moreover, banks owned by foreigners prevent liquidity shocks to the banking system of the EMEs entered. The highly capitalized parent banks provide financial support during financial crisis. Therefore, an EME that has foreign banks in its banking system can be protected irrespective of the risk-taking behavior of banks owned by foreigners (Yeyati & Micco, 2007).

Clarke et al. (2003) found that foreign banks operating in Argentina in the late 1990s were more efficient than the indigenous banks. Debnath and Shankar (2008) found similar results in a study that banks from foreign countries compared to indigenous banks in India were relatively efficient using data for the period 2001-2005. Sanjeev (2009) conducted a similar study on Indian banks, using financial information from 2003 to 2007. They concluded that that foreign banks were efficient compared to Indian local banks.

EMEs need to know that some risks or costs exist with the entry of banks owned by foreigners on the profitable operations of the domestic-owned banks (Detragiache & Gupta, 2006). Domestic organizations prefer to do their banking with banks owned by foreigners because the foreign-owned banks have the financial backing of their parent banks. Domestic-owned banks take on greater risks by paying higher interest rate on deposits to attract high net-worth clients (Aliber, 2002; Goldberg, 2009). Domestic-owned banks pay higher interest rates on deposits but cannot charge higher interest rates on loans, which adversely affect their profitability (Detragiache & Gupta, 2006). Again, banks owned by foreigners attract profitable businesses in the domestic markets because of the array of services provided. As a result, indigenous banks serve the riskier sectors.

Studies that focus on country-level experiences show that in some countries, the entry of banks owned by foreigners negatively affect the banking industry of these EMEs. For instance, Denizer, Dinc, and Tarimcilar (2007) examined the entry of banks from foreign countries in the banking sector of Turkey. The results reflect that overhead expenses increased, net interest margin decreased, and ROA of the domestic-owned banks declined. According to Denizer et al. (2007), the entry of banks owned by foreigners resulted in competition for domestic-owned banks, which led to an increase in operating expenses and a decrease in ROA.

Detragiache and Gupta (2006) studied the Malaysian banking sector in the late 1990s; the authors concluded that foreign bank entry affected the ROA of domestic-owned banks. Moreover, Clarke, Cull,

and Martinez-Peria (2006) found in a study of banks owned by foreigners in some South American countries in the 1990s: Argentina, Chile, Colombia, and Peru, that banks owned by foreigners do not extend credit to indigenous small and medium enterprises (SMEs). Thus, the entry could affect the economic growth of the host country.

Kalluru and Bhat (2009) conducted research on Indian banks for the period 1996-2007. They find the entry of banks owned by foreigners resulted in a reduction in net interest income caused by an increase in operating costs and bad loans made by the domestic-owned banks. They observed that foreign owned banks “cherry picked” the blue-chipped businesses and left credit unworthy firms and riskier sectors of the economy to domestic-owned banks (p. 43).

## **DATA SOURCES, SAMPLING PROCEDURE, AND MODELING TECHNIQUES**

The study examines foreign bank entry on the financial performance or profitable operations of two domestic-owned banks in Ghana, MBG and GCB, from 1975 to 2008. The effects of foreign-owned bank entry on domestic-owned banks were modeled using a generalized banking operating efficiency function. In this study, the effects of foreign bank entry on the profitable performance of domestic-owned banks in Ghana, was based on a bank’s profitability model using capital adequacy, liquidity, and a foreign-bank entry dummy variable from 1975 to 2008.

The Ghanaian banking industry is diverse with 25 banks in operation in 2008 (Bank of Ghana, 2009; PricewaterhouseCoopers, 2009): three development banks, five merchant banks, and 17 commercial banks. Of the 25 banks in Ghana in 2008, foreigners owned 13, and had more of the total assets (PricewaterhouseCoopers, 2009). Some foreign-owned banks in Ghana are Standard Chartered Bank of Ghana (StanChart, United Kingdom), Barclays Bank of Ghana (BBG, United Kingdom), Zenith Bank (Nigeria), and Trust Bank (South Africa) (Buchs & Mathisen, 2005; PricewaterhouseCoopers, 2009). A couple of the domestic-owned banks are Merchant Bank of Ghana (MBG) and Ghana Commercial Bank (GCB) (Bank of Ghana, 2009; PricewaterhouseCoopers, 2009).

We reviewed the annual financial reports or balance sheet and income statements for the two selected indigenous banks in Ghana: MBG and GCB. The quantitative dependent variable was ROA measured as net income to total assets, a measure of profitable operations of domestic-owned banks in Ghana. The quantitative independent variables were two CAMELS factors and a dummy variable: (a) capital adequacy and (b) liquidity, and (c) the foreign bank entry dummy (Derviz & Podpiera, 2008). The sample period runs from 1975 to 2008 with sub-periods of 1975-1991 and 1992-2008.

Out eleven domestic-owned banks in Ghana in 2008, only six were in operation prior to 1975. MBG and GCB were selected for study because they were the only domestic-owned banks, out of the six, which readily had data needed for the study. The operations of these two banks are comparable to foreign banks. Therefore, the entry the foreign banks could have affected these two domestic-owned banks.

Capital adequacy ratio (CAR) measures the soundness of a bank’s capital or assets (Buchs & Mathisen, 2005). CAR is used to monitor deposits to safeguard the interest of depositors and thereby encourage stability and efficiency in the banking system (Buchs & Mathisen, 2005). In this study, CAR is a measure of the total shareholders’ equity capital to total assets (Fraser & Ormiston, 2009).

Liquidity measures the quality and adequacy of current assets to meet current liabilities as they mature (Fraser & Ormiston, 2009). A liquid bank has adequate current assets, convertible to cash, without a loss in value. A liquid bank provides a higher level of security to depositors in that in the case of bank liquidation. The depositors have an increased chance of receiving their deposits (Fraser & Ormiston, 2009). In this study, liquidity ratio was measured as current assets to current liabilities (Buchs & Mathisen, 2005). The foreign bank dummy was measured as foreign banks that entered Ghana in the

study period, 1975-2008. If there was foreign bank entry in a particular year, 1 (one) was assigned; otherwise, 0 (zero) was assigned.

The entry of foreign banks affects the financial performance of domestic banks in terms of ROA, liquidity, and capital adequacy (Derviz & Podpiera, 2008). Foreign-owned bank entry on domestic-owned banks was modeled using a generalized banking operating efficiency function:

$$\text{Profitability} = f(\text{foreign bank entry, capital adequacy, and liquidity}) \quad (1)$$

Where, profitability reflects productive efficiency measured in terms ROA of a bank. A bank's net income increases with a decrease in operating expenses; as a result, ROA would improve because ROA is measured by dividing net income by total assets.

The model assumed that a bank's profitability increases when costs go down because a bank enjoys economies of scale, and when costs increase, a bank enjoys diseconomies of scales. The bank's profitability is modeled on the assumption of diminishing returns used by the Cobb-Douglas production function (Zellner, Kmenta, & Dreze, 1966). As explained by economic theory of the firm, output, and input; the profit of a firm is determined by the production function, the definition of profit, and the conditions of profit maximization (Felipe & Adams, 2005; Goodfriend & McCallum, 2006).

We develop three formulas: production function, profit definition, and profit maximizing conditions. These formulas were applied to analyze foreign-owned bank entry and its effects on the profitable operations of the two indigenous banks in Ghana. The empirical model can be specified as follows:

$$ROA = b_0 + b_1CapAdq + b_2LiqRat + b_3ForBankEntDum + u_t \quad (2)$$

Where,

ROA = bank's profitability

$b_0$  = intercept (constant).

$b_1CapAdq$  = regression coefficient that measured the sensitivity of capital adequacy ratio to ROA.

$b_2LiqRat$  = regression coefficient that measured the sensitivity of liquidity ratio to ROA.

$b_3ForBankEntDum$  = regression coefficient that measured the sensitivity of entry of foreign banks to ROA.

$u_t$  = an error term or random disturbance because the  $u_t$  disturbs an otherwise stable relationship, in which  $t$  is the period of measurement.

Every influence on the economic variables in a model cannot be captured, no matter how elaborate the formula, because of omitted variable(s). In quantitative multiple regression analysis, the underlying theory specifies the dependent and independent variables in the model. It may not always be obvious if the model were defined appropriately, as each variable selected is limited (Greene & Hensher, 2007; Greene, Hensher, & Rose, 2006). The regression coefficient,  $b_n$ , was tested by designing a hypothesis with knowledge of the degrees of freedom ( $df$ ) from the  $t$ -distribution table (Johnston & Duke, 2008).

## EMPIRICAL ESTIMATION AND ANALYSIS OF RESULTS

Panels A, B, and C of Table 1 reported the analysis of the descriptive statistics for the combined data of the two selected domestic-owned banks (MBG and GCB) in the three periods. The number of observations for each of the two periods, 1975-1991, Panel A of Table 1, and 1992-2008, Panel B of Table 1, was 34, a number significant enough to use statistical analytical software. There were 68 observations for the period 1975-2008 (see Panel C of Table 1).

Table 1: Summary Statistics

<b>Panel A: Summary Statistics for MBG and GCB for the Period 1975-1991 (N = 34)</b>				
Variable	Mean (%)	SD	Minimum	Maximum
Return on Assets	1.6562	1.2181	-0.7500	4.6900
Liquidity	1.0365	0.0433	0.9400	1.1300
Capital ratio	5.8235	3.9808	1.0000	14.0000
Foreign bank entry dummy	0.1806	0.8347	0.0000	4.6900
<b>Panel B: Summary Statistics for MBG and GCB for the Period 1992-2008 (N = 34)</b>				
Variable	Mean (%)	SD	Minimum	Maximum
Return on Assets	3.6518	1.8989	0.2000	8.9300
Liquidity	1.1035	0.0352	1.0500	1.2100
Capital ratio	12.9706	2.6570	9.0000	21.0000
Foreign bank entry dummy	1.9259	2.3272	0.0000	8.9300
<b>Panel C: Summary Statistics for MBG and GCB for the Period 1975-2008 (N = 68)</b>				
Variable	Mean (%)	SD	Minimum	Maximum
Return on Assets	2.6343	1.9047	-0.7900	8.9300
Liquidity	1.0712	0.0513	0.9400	1.2100
Capital ratio	9.5882	4.8844	1.0000	21.0000
Foreign bank entry dummy	1.0532	1.9451	0.0000	8.9300

*Panels A, B, and C of Table 1 reported the analysis of the descriptive statistics for the combined data of the two selected domestic-owned banks (MBG and GCB) in the three periods: 1975-1991, 1992-2008, and 1975-2008.*

The mean ROA for the two combined domestic-owned banks for the period 1992-2008 was 3.65%, about 2.00% higher than the ROA for the same banks in the period 1975-1991. This suggested the two domestic-owned banks were growing in total assets in the observed period. The mean ROA for 1975-2008 was 2.63%. The average liquidity ratio was about the same (1.07%) for the three periods. The mean for the capital ratio was relatively higher for the combined data of the two domestic-owned banks. The ratio for the period 1992-2008 was 12.97%, about 7.15% higher than in the 1975-1991 period. The means for the foreign bank entry dummy were 0.18%, 1.93%, and 1.05% for the periods 1975-1991, 1992-2008, and 1975-2008 respectively.

From 1996 to 1999 and from 2003 to 2008 at least one foreign bank entered Ghana in each year. The standard deviations for the variables in the analysis were relatively higher for the periods 1992-2008 and 1975-2008 compared to the period 1975-1991 because of an increase in foreign bank entry in Ghana, which led to an increase in banking activities in the country. The maximum and minimum values showed similar trends.

Panels A and B of Table 2 show the estimated correlation matrix for MBG and GCB respectively. The results show that no multicollinearity existed among the three independent variables. If such problem existed, the second number under each of the independent variables would be more than 0.5000.

For example, for Panel A of Table 2, the second number under the intersection between liquidity and capital ratio was 0.0001 (indicating the absence of multicollinearity). Moreover, in Panel A of Table 2, there was positive and highly significant correlation between MBG’s return on assets, liquidity, capital adequacy, and the foreign bank entry dummy. For example, for Panel B of Table 2, the second number under the intersection between liquidity and the foreign bank entry dummy was 0.0363. Moreover, in Panel B of Table 2, there was positive and significant correlation between GCB’s return on assets and liquidity, capital adequacy as well as the foreign bank entry dummy.

Table 2: Estimate Correction Matrix

<b>Panel A: Estimated Correlation Matrix for MBG for the Period 1975-2008 (N = 34)</b>				
Variable	1	2	3	4
1. Return on asset	1.0000			
2. Liquidity	0.4387 *** 0.0094	1.0000		
3. Capital ratio	0.5714 *** 0.0004	0.7675 *** 0.0001	1.0000	
4. Foreign bank entry dummy	0.5632 *** 0.0005	0.3009 ** 0.0838	0.2965 ** 0.0887	1.0000
<b>Panel B: Estimated Correlation Matrix for GCB for the Period 1975-2008 (N = 34)</b>				
Variable	1	2	3	4
1. Return on asset	1.0000			
2. Liquidity	0.3541 ** 0.0399	1.0000		
3. Capital ratio	0.3957 ** 0.0205	0.9593 *** 0.0001	1.0000	
4. Foreign bank entry dummy	0.6194 *** 0.0001	0.3603 ** 0.0363	0.4030 *** 0.0181	1.0000
<b>Panel C: Estimated Correlation Matrix of Pooled Regression for MBG and GCB for the Period 1975-2008 (N = 68)</b>				
Variable	1	2	3	4
1. Return on Assets	1.0000			
2. Liquidity	0.3719 *** 0.0018	1.0000		
3. Capital ratio	0.4895 *** 0.0001	0.8555 *** 0.0001	1.0000	
4. Foreign bank entry dummy	0.5651 *** 0.0001	0.2888 *** 0.0169	0.3163 *** 0.0086	1.0000

Panel A of Table 2:  $Prob > |r|$  under  $H_0: Rho = 0$ . The rule of thumb applied here is that if the  $prob > |r|$ , no multicollinearity exists among the three independent variables (1975- 2008). Panel B of Table 2:  $Prob > |r|$  under  $H_0: Rho = 0$ . The rule of thumb applied here is that if the  $prob > |r|$ , no multicollinearity exists among the three independent variables (1975- 2008). Panel C of Table 2:  $Prob > |r|$  under  $H_0: Rho = 0$ . The rule of thumb applied here is that if the  $prob > |r|$ , no multicollinearity exists between the two combined banks (1975- 2008). \*\*\* and \*\* indicate significance at the 1% and 5 % levels respectively.

Panel C of Table 2 shows the estimated correlation matrix for the combined data of the two domestic-owned banks. Panel C of Table 2 showed that no multicollinearity existed among the three independent variables. If such problem existed, the second number under each of the independent variables, in Panel C of Table 2 would be more than 0.5000. For example, the second number under the intersection between liquidity and foreign bank entry dummy was 0.0169 (indicating the absence of multicollinearity). In Panel C of Table 2, there was positive and significant correlation between the two combined domestic-owned banks' ROA and liquidity, capital adequacy, and the foreign bank entry dummy at 0.3719, 0.4895, and 0.5651, respectively. If multicollinearity existed among the three independent variables, shown on Panels A, B, and C of Table 2, it would have reduced the power of the test (R-squared).

Panels A, B, and C of Table 3 reported the results of the pooled ordinary least squares (OLS) regression for the two domestic-owned banks (MBG and GCB) in this study for the three periods: 1975-1991, 1992-2008, and 1975 to 2008. In the period 1975-1991 (see Panel A of Table 3), liquidity ratio, capital ratio, and the foreign bank entry dummy could explain the two domestic-owned banks' ROA by 30% (Adjusted-R<sup>2</sup> was 30%). Liquidity ratio and the foreign bank entry dummy were not significant in explaining the bank's ROA. The capital adequacy ratio was statistically significant in explaining the domestic banks' ROA for the period 1975-1991 at 5% level. For the period 1975-1991, when the domestic banks' capital adequacy ratio increased by 1%, the ROA decreased by 0.14%, indicating a relatively smaller multiplier effect of capital ratio on the banks' ROA for the period 1975-1991.

For the period 1992-2008, shown in Table 3 Panel B, the adjusted R-squared for both domestic-owned banks was 26%. Capital adequacy ratio and the foreign bank entry dummy were positive and statistically significant in explaining the two domestic-owned banks' ROA. Liquidity ratio was negative and explained the two domestic-owned banks' ROA. For 1% increase in capital ratio and foreign bank entry dummy of the two domestic banks, the ROA increased by 0.35%, and 0.39%, respectively. Therefore, capital adequacy and the foreign bank entry dummy positively affected the domestic banks' ROA due in part to high influx of foreign banks in Ghana. Liquidity ratio had negative effect on ROA. For every 1% increase in liquidity ratio, the two domestic-owned banks' ROA decreased by 26.17% in 1992-2008.

In the longer period, 1975-2008, shown in Panel C of Table 3, the adjusted R-squared for the two domestic-owned banks was 41%. Liquidity ratio was not significant in explaining the two domestic-owned banks' ROA. Capital adequacy and the foreign bank entry dummy were statistically significant in explaining the domestic-owned banks' ROA in the observed period by 1% respectively. For every 1% increase in capital ratio, the domestic-owned banks' ROA increased by 0.20%. Similarly, for every 1% increase in foreign bank entry dummy, the domestic-owned banks' ROA increased by 0.45%. Therefore, capital adequacy and foreign bank entry dummy positively affected domestic-owned banks' ROA due in part to the high influx of foreign banks in Ghana.

The Durbin-Watson statistic that detects the presence of auto-correlation was 1.59 from Panel A of Table 3, 2.10 from Panel B of Table 3, and 1.55 from Panel C of Table 3 (the acceptable range is around  $\approx 2.0$ ). If an auto-correlation problem occurred in the data, the variables were measured with errors. The presence of errors in the data would cast doubts on the results, as explained above. To remove auto-correlation problem, one has to find the difference in the data,  $(t-1)$ , and filter out the errors.

This section examined the statistical significance of the three independent variables: liquidity ratio, capital adequacy, and the foreign bank entry dummy on the dependent variable, ROA, on MBG and GCB. The most consistent result was that foreign bank entry increased domestic-owned banks' ROA especially for the period 1992-2008. This was the period with a high influx of foreign-owned banks in Ghana. Liquidity had a relatively larger multiplier effect on domestic-owned banks' ROA in the observed periods, especially for the period 1975-1991 than any other independent variable in the study.

## SUMMARY AND RECOMMENDATIONS

The goal of this study was to examine empirically the effects of the entry of banks owned by foreigners on ROA of two domestic-owned banks in Ghana, MBG and GCB, from 1975 to 2008. The study was conducted by reviewing the annual financial reports or balance sheet and income statements for two selected indigenous banks in Ghana. The quantitative dependent variable was ROA and the quantitative independent variables were two CAMELS factors and a dummy variable: (a) capital adequacy and (b) liquidity, and (c) the foreign bank entry dummy (Derviz & Podpiera, 2008). The foreign bank entry dummy was measured as 1 if there was foreign bank entry in a particular year and 0 otherwise.

The results from the pooled regression analysis consistently found the foreign bank entry dummy significantly explained the combined data of the two selected domestic-owned banks' ROA for the cumulative period of 1975-2008 and for the period 1992-2008. This was because Ghana experienced a high influx of foreign banks for the period 1992-2008. For instance, the mean ROA for the two combined domestic-owned banks for the period 1992-2008 was 3.65%, about 2.00% higher than the ROA for the same banks in the period 1975-1991.

The results of the study support the theories of technology spillover (Gormley, 2007), and financial or market integration (Demirgüç-Kunt & Levine, 2008; Giannetti & Ongena, 2009). The entry of foreign banks has had a technology spillover effect on domestic-owned banks in Ghana in that domestic-owned banks use new technology to improve their financial performance (Buchs & Mathisen, 2005; Gormley,



2007). Domestic-owned banks in Ghana have provided their customers with access to automated teller machines (ATMs) and online banking.

Table 3: Multiple Regression Results

<b>Panel A: Multiple Regression Results for MBG and GCB for the Period 1975-1991 (N = 34)</b>					
Regressor	Coefficient	Standard error	T-ratio	[Prob] >	t
Intercept	0.6311	6.1122	0.1000	0.9184	
Liquidity	0.1260	6.1700	0.0200	0.9838	
Capital ratio	0.1424	0.0690	2.0600**	0.0477	
Foreign bank entry dummy	0.3601	0.2278	1.5800	0.1244	
<b>Panel B: Multiple Regression Results for MBG and GCB for the Period 1992-2008 (N = 34)</b>					
Regressor	Coefficient	Standard error	T-ratio	[Prob] >	t
Intercept	27.1828	11.8501	2.2900**	0.0290	
Liquidity	-26.1685	12.058	-2.1700**	0.0380	
Capital ratio	0.3538	0.1614	2.1900**	0.0363	
Foreign bank entry dummy	0.3936	0.1243	3.1700***	0.0035	
<b>Panel C: Pooled Multiple Results for MBG and GCB for the Period 1975-2008 (N = 68)</b>					
Regressor	Coefficient	Standard error	T-ratio	[Prob] >	t
Intercept	8.4163	6.6390	1.2700	0.2095	
Liquidity	-7.6570	6.7272	-1.1400	0.2593	
Capital ratio	0.2029	0.0713	2.8500***	0.0059	
Foreign bank entry dummy	0.4505	0.0968	4.6500***	0.0001	

Panel A of Table 3: Dependent variable: ROA. Adjusted  $R^2 = 0.30$ . Reprinting student t-tables from P. B. Hoel. Introduction to Mathematical Statistics, 4th ed., New York: NY, Wiley, 1971 by permission of the publishers. Durbin-Watson Statistic = 1.59. Panel B of Table 3: Dependent variable: ROA. Adjusted  $R^2 = 0.26$ . Reprinting student t-tables from P. B. Hoel. Introduction to Mathematical Statistics, 4th ed., New York: NY, Wiley, 1971 by permission of the publishers. Durbin-Watson Statistic = 2.10. Panel C of Table 3: Dependent variable: Return on asset. Adjusted  $R^2 = 0.41$ . Reprinting student t-tables from P. B. Hoel. Introduction to Mathematical Statistics, 4th ed., New York: NY, Wiley, 1971 by permission of the publishers. Capital ratio correlated with liquidity so it was removed to avoid multicollinearity problem. Durbin-Watson Statistic = 1.55. \*\*\* and \*\* indicate significance at the 1% and 5% levels respectively.

The main limitation of the study was using three quantitative variables and one key dummy variable. Other variables, for instance, debt ratio and market risk could have been added to the independent variables with the foreign bank entry dummy to increase the coefficient of determination (R-squared). The banks' operating efficiency (total expenses/total assets) or return on shareholders' equity capital (ROE, measured as net income to stockholders' equity) could have been used instead of the study's dependent variable (ROA). ROE was not used because this study measured the banks' total performance instead of individual investor's performance.

The future research direction is to duplicate the model to banking sectors of other EMEs. The results of this study may not be applicable to banks in other countries without recognizing the uniqueness of each country. Applying the conclusions based on data from Ghana to other countries may depend on the economic and financial micro and macro-structures. It may be useful for other studies following this model to add qualitative factors, for example, management leadership style with the quantitative factors. This would provide both subjective and objective analysis on financial performance of domestic-owned banks with the entry of foreign-owned banks. Moreover, in countries where there are more domestic-owned banks with available financial reports, future research should increase the number of banks and include more quantitative variables, for instance, debt ratio, market risk, and return on equity in the study.

The government of Ghana and the banking authorities need to continue to encourage SAPs (Demirgüç-Kunt & Levine, 2008). Banking authorities need to have policies in place to ensure that the foreign banks are competing fairly with domestic-owned banks. Reforming and developing domestic financial markets would attract banks owned by foreigners and could accelerate the growth of the financial sector in Ghana (Beck et al., 2006; Boldrin & Levine, 2009). Based on the results from this study, the governments of Ghana and other similar EMEs need to attract foreign-owned banks into their banking industry. The entry is not detrimental to domestic-owned banks at all times.

## REFERENCES

- Aliber, R. Z. (2002). *The new international money game* (6<sup>th</sup> ed.). Chicago, IL: University of Chicago Press.
- Asiedu, E. (2006). Foreign direct investment in Africa: The role of natural resources, market size, government policy, institutions, and political instability. *The World Economy* 29(1), 63-77.
- Balasubramanyan, L. (2009). *Measuring the efficiency of financial inputs for entrepreneurship* (Networks Financial Institute Working Paper No. 2009-WP-03). Chicago, IL: Federal Reserve Board. Retrieved December 27, 2011, from <http://papers.ssrn.com/>
- Bank of Ghana. (2009). *Banks operating in Ghana*. Retrieved October 10, 2011, from Bank of Ghana website, <http://www.bog.gov.gh/>
- Beck, T., Demirgüç-Kunt, A., & Levine, R. (2006). Bank concentration, competition, and crises: First Results. *Journal of Banking & Finance*, 30(5), 1581-1603.
- Bhaumik, S. K., & Gelb, S. (2005). Determinants of MNCs' mode of entry into an emerging market: Some evidence from South Africa and Egypt. *Emerging Markets Finance and Trade*, 41(2), 5-24.
- Boldrin, M., & Levine, D. K. (2009). Market size and intellectual property protection *International Economic Review*, 50(3), 855-881.
- Briones, I., & Villela, A. (2006). European bank penetration during the first wave of globalization: Lessons from Brazil and Chile. *European Review of Economic History*, 10(3), 329-345.
- Buchs, T., & Mathisen, J. (2005). *Competition and efficiency in banking: Behavioral evidence from Ghana*. (Working Paper No. 05/17). Ghana, West Africa: International Monetary Fund (IMF).
- Claessens, S., Van Horen, N., Gurcanlar, T., & Mercado, J. (2008, March). *Foreign bank presence in developing countries 1995-2006: Data and trends*. (World Bank's Policy Research Working Paper: JEL Classification: F21, F23, G21). Washington, D.C.: World Bank. Retrieved November 21, 2011, from <http://papers.ssrn.com/>
- Clarke, G., Cull, R., & Martinez-Peria, M. S. (2006, December). Foreign bank participation and access to credit across firms in developing countries. *Journal of Comparative Economics*, 34(4), 774-795.
- Clarke, G., Cull, R., Martinez-Peria, M. S., & Sanchez, S. M. (2003). Foreign bank entry: Experience, implications for developing economies, and agenda for further research. *The World Bank Research Observer*, 18(1), 25-59.
- Debnath, R. M., & Shankar, R. (2008). Measuring performance of Indian banks: An application data envelopment analysis. *International Journal of Business Performance Management*, 10(1), 57-85.
- Demirgüç-Kunt, A., Detragiache, E., & Tressel, T. (2006). Banking on the principles: Compliance with Basel core principles and bank soundness. *Journal of Financial Intermediation*, 17(4), 511-542.
- Demirgüç-Kunt, A., & Levine, R. (2008, January). *Finance, financial sector policies, and long-run growth*. (World Bank Policy Research Paper 4469). Washington, D.C, USA: World Bank. Retrieved September 23, 2011, from <http://papers.ssrn.com/>

Denizer, C. A., Dinc, M., & Tarimcilar, M. (2007, June). Financial liberalization and banking efficiency: Evidence from Turkey. *Journal of Productivity Analysis*, 27(3), 177-196.

Derviz, A., & Podpiera, J. (2008, January-February). Predicting bank CAMELS and ratings: The case of Czech Republic. *Emerging Market Finance and Trade*, 44(1), 117-130.

Detragiache, E., & Gupta, P. (2006, August). Foreign banks in emerging market crises: Evidence from Malaysia. *Journal of Financial Stability*, 2(2006), 217-242.

Domanski, D. (2005, December). Foreign banks in emerging market economies: Changing players, changing issues. *BIS Quarterly Review*, 69-81.

Felipe, J., & Adams, F. G. (2005). "A theory of production." The estimation of the Cobb-Douglas function: A retrospective view. *Eastern Economic Journal*, 31(3), 427-445.

Fraser, L. M., & Ormiston, A. (2009). *Understanding financial statements*. Upper Saddle River, NJ: Prentice Hall.

Giannetti, M., & Ongena, S. (2009). Financial integration and firm performance: Evidence from foreign bank entry in emerging markets. *Review of Finance*, 13(2), 181-223.

Girard, E., Nolan, J., & Pondillo, T. (2010). Determinants of emerging markets' commercial bank stock returns. *Global Journal of Business*, 4(2), 11-26.

Goldberg, L. S. (2009). Understanding banking sector globalization. *IMF Staff Paper*, 56(1), 171-198.

Goodfriend, M., & McCallum, B. T. (2006). Banking and interest rates in monetary policy analysis: A quantitative exploration. *Journal of Monetary Economics*, 54(5), 1480-1507.

Gormley, T. A. (2007, December). *The impact of foreign bank entry in emerging markets: Evidence from India* (Working Paper 268). St. Louis, WA: Washington University.

Greene, W. H., & Hensher, D. A. (2007). Heteroscedastic control for random coefficients and error components in mixed logit. *Transportation Research Part E: Logistics and Transportation Review*, 43(5), 610-623.

Greene, W. H., Hensher, D. A., & Rose, J. (2006, January). Accounting for the heterogeneity in the variance of unobserved effects in mixed logit models. *Transportation Research Part B: Methodological*, 40(1), 75-92.

Johnston, R. J., & Duke, J. M. (2008). Benefit transfer equivalence tests with non-normal distributions. *Environmental and Resources Economics*, 41(1), 1-23.

Kalluru, S., & Bhat, S. (2009). Does foreign bank entry affect operations of domestic banks? A study on Indian public sector banks. Institute of Chartered Financial Analysts of India (Hyderabad). *The ICFAI Journal of Managerial Economics*, 7(3/4), 40-51.

Lehner, M., & Schnitzer, M. (2008). Entry of foreign banks and their impact on host countries. *Journal of Comparative Economics*, 36(3), 430-452.

Maudos, J., & Solis, L. (2007). Deregulation, liberalization, and consolidation of the Mexican banking system: Effects on competition. *Valencian Institute of Economic Research (Ivie) WP-EC 2007-13*.

PricewaterhouseCoopers. (2009). *Ghana banking survey for 2008*. Accra, Ghana:  
PricewaterhouseCoopers. Retrieved October 21, 2011, from <http://www.pwc.com/gh>

Qin, F., & Liu, Y. (2008). Does foreign strategic investment transfer management knowledge to local Chinese banks? *Chinese Management Studies*, 2(2), 142-152.

Sanjeev, G. M. (2009, November). Efficiency of Indian public sector banks: An application of data envelopment analysis (DEA) approach. Institute of Chartered Financial Analysts of India (ICFAI). *The ICFAI Journal of Applied Finance*, 15(11), 52-65.

Stein, H. (2010). Financial liberalization, institutional transformation, and credit allocation in developing countries: The World Bank and the internationalization of banking. *Cambridge Journal of Economics*, 34(2), 257-273.

Yeyati, E. L., & Micco, A. (2007). Concentration and foreign penetration in Latin American banking sectors: Impact of competition and risk. *Journal of Banking & Finance*, 31(6), 1633-1647.

Zellner, A., Kmenta, J., & Dreze, J. (1966, October). Specification and estimation of Cobb-Douglas production-function models. *Econometrica*, 34(4), 784-795.

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