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Foreign Banks in Sub-Saharan Africa - Do North-South and South-South Banks Induce Different Effects on Domestic Banks?

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Abstract

In theory, the presence of foreign banks has spillover and competition effects on domestic banks leading to higher efficiency. Next to foreign banks from industrialized countries (north-south banks), foreign banks from developing countries (south-south banks) are important investors in Sub-Saharan Africa (SSA). South-south banks are either regional investors or are hosted in developing countries beyond SSA. This paper studies the competitive advantages and strategies of north-south as well as regional and non-regional south-south banks from a theoretical perspective. Moreover, the study examines theoretically whether these foreign banks induce different effects on domestic banks.

To explore these issues empirically, 80 domestic banks in 17 countries of SSA between 1999 and 2006 are considered. The results show that the presence of north-south and south-south banks positively affects the costs of domestic banks. This suggests that domestic banks invest in the modern practices of foreign banks. Domestic banks' margins are positively related to the presence of north-south and non-regional south-south banks indicating a lack of competitive pressure. In contrast, regional south-south banks have a negative impact on the margins of domestic banks.

JEL Classification: F21, F23, F36

Keywords: Sub-Saharan Africa, south-south banks, spillover and competition effects, efficiency

1 Introduction

The costs of financial intermediation, measured in terms of net interest margins, are still high in Sub-Saharan Africa (SSA) (Al-Haschimi 2007: 1). This paper analyzes if the presence of the foreign subsidiaries of multinational banks (MNBs) has slightly increased the efficiency of domestic banks in SSA through spillover and competition effects.

Next to foreign banks headquartered in industrialized countries (north-south banks), foreign banks from developing countries (south-south banks) are playing an increasingly important role in SSA. South-south banks are either regional investors from countries of SSA or non-regional investors hosted in countries beyond SSA. Depending on their competitive advantages and expansion strategies, the presence of north-south and south-south banks may have different effects on domestic banks. To explore the effects of foreign banks in general and the effects of north-south as well as regional and non-regional south-south banks on domestic banks in particular from an empirical perspective, a unique data set is compiled from balance sheet data of about 80 domestic banks in 17 countries of SSA for the years 1999 to 2006. The empirical model of Demirgüç-Kunt et al. (2004), who study the determinants of bank efficiency of 1400 banks across 72 countries, serves as the baseline for this study. Their model has already been applied to study the determinants of net interest margins of commercial banks in SSA (see Al-Haschimi 2007).

Empirical studies related to this paper are Hermes and Lensink (2002), Claessens and Lee (2003) and Lensink and Hermes (2004). The authors study the effects of foreign bank entry on domestic banks in low-income countries. For example, Hermes and Lensink (2002) show that domestic banks benefit from modern bank techniques and practices of foreign banks. As there is a lack of competitive pressure from foreign entrants, domestic banks are able to charge higher net interest margins.

To the best of my knowledge, this paper is the first to study the effects of north-south and south-south banks on domestic banks in countries of SSA. The results of the empirical examination show that the overhead costs of domestic banks are positively affected by foreign banks, and especially regional south-south banks. As domestic banks invest in foreign practices and technologies, their costs rise. The net interest margins of domestic banks are also positively related to north-south and non-regional south-south banks indicating a lack of competitive pressure. In contrast, regional south-south banks negatively affect domestic banks' net interest margins.

Section 2 builds the theoretical foundation of this study. In Section 3 the empirical study is conducted. Section 4 summarizes the findings of this paper.

2 Theoretical Background

2.1 The Eclectic Theory of Multinational Banks

MNBs from industrialized countries like UK's Barclays and Standard Chartered Bank, the French BNP Paribas, Société Générale and Credit Agricole, the Banco Comercial Portugues and the US's Citigroup are important investors in SSA (Moin 2008, Honohan/Beck 2007: 92f.). According to the Eclectic Theory (Cho 1985: 56, Dunning 1989: 16), MNBs from industrialized countries are disadvantaged in SSA because of institutional, cultural, and spatial distance. Moreover, they face different consumer preferences compared to those of their home country customers (Hymer 1976: 34f.). As MNBs from industrialized countries suffer from the liability of foreignness, they have to possess ownership-, internalization- and location-specific advantages (Cho 1985: 56, Dunning 1989: 16). Size, state-of-the-art practices and technologies, differentiated products and services, knowledge, experience in multinational banking operations and serving particular customer groups may be some of the ownership-specific advantages of MNBs from industrialized countries. Location-specific advantages of MNBs generally apply to different regulative structures or reserve requirements (Cho 1985: 58, 63). Moreover, economic differences, e.g. regarding the size of an economy or the development stage generate location-specific advantages. The economic integration of host and source country through trade and foreign direct investment can be an advantage, because of already existing customer relationships (Cho 1985: 58). Ownership- and location-specific advantages are essential but not sufficient for multinationalization. Rather, internalization within the bank is necessary to exploit these advantages (Uiboupin 2005: 28).

Next to MNBs from industrialized countries, MNBs from developing countries are important investors in SSA. These banks are either regional multinationals, like Stanbic Bank from South Africa or Togo's Ecobank, or non-regional multinationals like Bank of Baroda from India. The Eclectic Theory of MNBs does not distinguish between MNBs from industrialized and developing countries in its original setting. A first eclectic analysis of MNBs from developing countries in particular is undertaken by Petrou (2007). According to the author, MNBs from developing countries also exploit their ownership- and internalization-specific advantages. However, the main difference compared to MNBs from industrialized countries is related to their location decision. MNBs from developing countries do not have the same capabilities and funding resources compared to their industrialized counterparts. Merely for their chosen foreign markets like MNCs from the same source country, expatriates and immigrants they possess some kind of ownership-specific advantages in the form of special knowledge about the target market, skills or reputation. The expansion of MNBs from devel-

oping countries is limited to small market niches like customers from the same host country and they cannot strategically choose their target markets. Rather than following profit and risk diversification opportunities, MNBs from developing countries select host countries where they expect to gain new competencies and support their reputation.

However, the competitive advantages of MNBs from developing countries may be more manifold, especially if they invest in other developing nations like SSA. First, they are less disadvantaged in being a foreigner as the similar stage of economic development or development process may provide a location-specific advantage. Second, as the quality of institutions is closely connected to a country's economic development level (Acemoglu et al. 2001: 1369), more economically distant countries face larger differences in institutional quality. Such differences may be a barrier to adapt to local banking practices (Mian 2006: 1495). South-south banks should be better able to assess the uncertainty of economic conditions in other developing nations (Claessens et al. 2008: 22), and especially in low-income countries (Claessens/Van Horen 2007: 4, Worldbank 2006: 120f.), compared to north-south banks. Therefore, they can simply exploit location-specific advantages like similarities of business cultures as well as economic and institutional similarities. South-south banks may apply their advantages that are specific to the stage of development of their host country like adapted business models, skills and distribution capabilities of cheap and differentiated products. They may be better able to identify the specific needs of low-income customers in developing nations. For example, complex bank accounts for household finance are generally too costly and are inappropriate for many African citizens, as they actually need basic transaction or saving accounts (Honohan/Beck 2007: 61). As some level of adaptation of ownership-specific advantages is necessary (Jensen/Szulanski 2004: 510) to make them work within the existing cultures and conditions of foreign markets, south-south might have less problems in being a foreigner in SSA compared to their industrialized counterparts.

The familiarity with the entry market under consideration may be especially strong if south-south banks are hosted in the same geographic region. Those banks may have a better understanding of local conditions. In fact, about 95% of MNBs in SSA invest in other countries of SSA (Claessens et al. 2008: 36). As MNBs from African countries follow regional expansion strategies, the spatial distance between host and home countries is smaller compared to MNBs from other non-regional countries. Hence, they are less disadvantaged as a foreigner because of spatial proximity. Geographical proximity often implies a similar cultural background as well as the same language and ethnical roots, whereby the business and risk assessment of banks is facilitated (Claessens et al. 2008: 22, Van Horen 2007: 90). Especially, in SSA the knowledge of unique cultural behavior is essential (Luiz/Charalambous 2009: 310). As there is a high interpersonal contact

within the banking sector, relationships, personal communication, and trust are of vital importance (Luiz/Charalambous 2009: 308ff.). Luiz and Charalambous (2009: 311f.) argue that South African banks have advantages when operating in SSA, because of their regional understanding and spatial proximity. Hence, they may have a comparative advantage to foreign banks from countries beyond SSA.

The similarities in political, economic and business environments in countries of SSA (Claessens et al. 2008: 22) may provide location-specific advantages for foreign banks from SSA. For example, as banks like Bank of Africa from Benin and Ecobank from Togo are confronted with similar problems in their home country, they are able to overcome the obstacles in other countries of the region (Claessens et al. 2009: 22). For example, Togos Ecobank has experience with the extent and importance of informal business practices in other African countries and develops African solutions to overcome these problems (Claessens et al. 2008: 22).

A principle concern of foreign bank market entry is the fear that these banks primarily concentrate on large, internationally-oriented corporations. Honohan and Beck (2007: 95) and Games (2004: 27) point out that industrialized MNBs like Standard Chartered and BNP Paribas mainly serve large international trading companies as well as high-income clients in SSA. The remaining market segments, like SMEs, remain underserved. In contrast, Stanbic and Absa from South Africa recently have shifted their business focus on lower- and middle-income clients (Honohan/Beck 2007: 95). MNBs from African countries have fewer problems to adapt to local conditions and face lower transaction costs to overcome the rigidity of traditions and business practices, when they invest in other African countries. They have already experience in doing business within challenging environments and they might more often be able to adopt soft lending techniques and overcome the informational opaqueness of SMEs.

Banks from the same geographic region may have a similar comparative advantage to other foreign banks like local banks, because of their knowledge of local conditions and their ability to screen and supervise local borrowers (Nini 2004: 1, Worldbank 2006: 121). An example is a debt-rating model focusing on limited disclosures common to African SMEs that was developed by Togos Ecobank (Essien 2007: 5).

The argumentation considers especially the situation in which MNBs initially enter developing countries. In the course of time, north-south and non-regional banks will also gain in experience of the local market and the prevailing customer preferences. Hence, they may also seek for new risk diversification and profit opportunities. As they have the capital to invest in appropriate lending technologies and risk management techniques, the SME segment as well as the mass consumer market may also become profitable for these banks.

2.2 Spillover and Competition Effects of Foreign Banks

As MNBs transfer ownership-specific advantages in foreign markets to ensure the competitiveness of their subsidiaries who suffer from the liability of foreignness, the market entry of foreign banks may have spillover and competition effects on domestic banks. Domestic banks in SSA may benefit from the competitive advantages of foreign banks by copying their modern practices, products, and technologies. As foreign banks disturb the existent market equilibrium, domestic banks are forced to act in order to keep their market shares. Both types of externalities can enhance the efficiency of domestic banks.

Generally south-south banks are less advanced with respect to technologies and banking practices. Hence, their market entry might not induce the same efficiency effects compared to north-south banks (Worldbank 2006: 124). In contrast, the knowledge and technological gap between domestic and north-south banks offers a lot of learning possibilities and there is a larger potential for spillover effects. However, too many differences between management practices and skills of managers or employees or the deployment of technologies can impair the absorptive capacity of domestic banks and therefore reduce the extent of spillover effects. South-south banks, and especially regional multinationals in SSA, may possess suitable banking practices, techniques and technologies for banking markets of SSA for which domestic banks have a high absorptive capacity. A better suitability implies smaller costs of adoption, because less adaptation arrangements are necessary. As the business models of south-south banks are less corporate and more informal than those of north-south banks, spillover effects may be fostered.

Competition from foreign entrants may have positive or negative effects. If domestic banks have a high absorptive capacity, they can become more efficient and catch up to foreign competitors. In contrast, if the knowledge and technological gap are too large, they cannot compete with their foreign counterparts and are squeezed out of the market (Uiboupin: 2005: 38). If foreign banks ‘cherry-pick’ the most profitable and less risky customers like MNCs or large export oriented local companies, domestic banks are left with credit lending to the more risky customer, whereby their efficiency can be reduced (Honohan/Beck 2007: 95, Havrylchyk and Jurzyk 2005: 4, Pomerleano/Voijta 2002: 66, Clarke et al. 2001: 5). Moreover, the extent of spillover effects might be small, ‘because of the special features of the retail market, one cannot analyze small retail loans by simply downsizing the models used to analyze large wholesale loans’ (Allen et al. 2004: 727). If south-south banks are more often active in the SME segment, the danger of crowding out is smaller, as domestic banks have better knowledge about local markets. They have to become more efficient, in order to stay competitive.

Summarized, the extent of spillover and competition effects of north-

south and south-south banks' presence on domestic banks in SSA cannot be determined a priori. Hence, an empirical analysis seems to be indicated.

3 Empirical Examination

3.1 Model Specification and Data

To exploit the impact of foreign banks on the efficiency of domestic banks in SSA, the following equation is estimated:¹

$$e_{ijt} = \beta_1 + \beta_2 fbtb_{jt} + \beta_4 b_{ijt} + \beta_5 c_{ij} + \varepsilon_{ijt} \quad (1)$$

where i identifies domestic banks, j countries of SSA and t the time period. Equation 1 explains the efficiency of domestic banks e_{ijt} by the ratio of foreign banks to total banks $fbtb_{jt}$, bank-specific variables b_{ijt} , country-specific variables c_{jt} and an error term ε_{ijt} .

Moreover, to differentiate between the effects of north-south and south-south bank presence, equation 1 is adjusted:

$$e_{ijt} = \beta_1 + \beta_2 nbtb_{jt} + \beta_3 sbtb_{jt} + \beta_4 b_{ijt} + \beta_5 c_{ij} + \varepsilon_{ijt} \quad (2)$$

where $nbtb_{jt}$ reflects the ratio north-south banks to total banks and $sbtb_{jt}$ the ratio of south-south banks to total banks in country j at time t .

To explore if there are any differences between the effects of regional and non-regional south-south banks, the following equation is estimated:

$$e_{ijt} = \beta_1 + \beta_2 nbtb_{jt} + \beta_3 ssasbtb_{jt} + \beta_4 nssasbtb_{jt} + \beta_5 b_{ijt} + \beta_6 c_{jt} + \varepsilon_{ijt} \quad (3)$$

where $ssasbtb_{jt}$ reflects the ratio of regional (SSA) south-south banks to total banks, and $nssasbtb_{jt}$ the ratio non-regional (non SSA) south-south banks to total banks.

Bank-Specific Variables

All bank-specific variables are from IBCA's Bankscope database. The dependent bank-specific variables e_{ijt} and independent bank-specific variables b_{ijt} are from the balance sheet data of 80 domestic banks in 17 low-income countries of SSA for the period 1999 to 2006.

First, the net interest margin (interest income minus interest expense) to total earning assets (net margin) serves as a measure of efficiency. Second, the ratio of overhead costs to total assets (costs) is used as dependent variable e_{ijt} . As net margins, large costs may reflect inefficiencies and market power of banks (Levine 2003: 9).

¹Claessens and Lee (2003) apply the same econometric model.

The bank-specific control variables b_{ijt} were selected on the basis of general studies on the determinants of the efficiency of commercial banks (e.g. Demirgüç-Kunt et al. 2004, Demirgüç-Kunt/Huizinga 1999). The model of Demirgüç-Kunt/Huizinga (1999) has been applied to study net margins of commercial banks in SSA (see Al-Haschimi 2007) and also serves as the baseline in this paper.

The first bank-specific control variable is bank size (size). Size is measured by the log of total assets of individual banks, accounting for possible economies of scale of larger banks. Economies of scale occur if the per unit average production cost of a firm declines with increasing output (Ikhida 2000: 17). Despite the small scale of the financial systems in countries in SSA (Beck et al. 2009: 5), banks may benefit from economies of scale (see Flamini et al. 2009). The gap between the interest rate paid to savers and the rate charged to borrowers are the result of intermediation costs like screening and monitoring borrowers (Dabla-Norris/Floerkemeier 2007: 5). As intermediation costs have a fixed cost element (Dabla-Norris/Floerkemeier 2007: 5), economies of scale are important (Bossone et al. 2002: 106). Generally, net margins may be reduced by large banks if there are increasing returns to scale. In contrast, if larger banks have a higher market power, net margins may increase (Levine 2003: 8). Previous studies find a negative relationship between size and net margin (see Beck and Hesse 2009: 193) and between size and costs (Micco et al. 2007: 228).

In order to account for a possible non-linear relationship and hence diseconomies of scale, the square of the log of total assets (sizesqr) also serves as a control variable. Diseconomies of scale occur when the average costs per unit increase beyond a certain production level, because of managerial and other inefficiencies (Ikhida 2000: 17). A positive and significant coefficient on size and a negative one for sizesqr indicates an inverted u-shape relationship. If the coefficient on size is negative and sizesqr positive, the relationship is u-shaped. This implies economies of scale at lower production levels and diseconomies of scale at higher levels (Ikhida 2000: 17). A non-significant coefficient for sizesqr implies a linear relationship. Flamini et al. (2009: 13) find evidence for economies of scale when studying the determinants of commercial bank profitability of banks in SSA: Larger banks can increase net margins due their strong market power. This relation seems to be non-linear, because of managerial and bureaucratic inefficiencies of too large banks.

The ratio of equity to total assets (capital) is used to measure capital. Banks with a well capital ratio tend to borrow less and have lower costs of refunding when capital markets are imperfect (Athansoglou 2008: 126f., Flamini et al. 2009: 7). Moreover, they have a lower probability of bankruptcy. Hence, a negative relationship between bank equity and net margins is expected, as long as highly capitalized banks do not decrease remarkably the interest charged on loans (Levine 2003: 8).

Banks in SSA are especially threatened by credit risk, because of insufficient legal frameworks, creditor rights and borrower information (Flamini et al. 2009: 7). Credit risk is captured by the ratio of loan-loss provisions to loans (risk).²

Next to interest-earning business, banks are active in non-lending activities. This may have an impact on the pricing of loan products in the case of a cross-subsidization of bank products (Levine 2003: 9). The ratio of non-interest income to total assets (fee income) is used to control for different income sources. Fee-based activities are generally less risky in contrast to interest-earning activities (Flamini et al. 2009: 7).

Differences in bank assets are reflected in the ratio of liquid assets (cash and deposit balances, including reserve requirements) to total assets (liquidity) (Demirgüç-Kunt et al. 2004: 603). Highly liquidized banks may earn lower net margins (Levine 2003: 9). In contrast, the opportunity costs due to a large liquidity ratio might be transferred to borrowers (Martinez Peria/Mody 2004: 519).

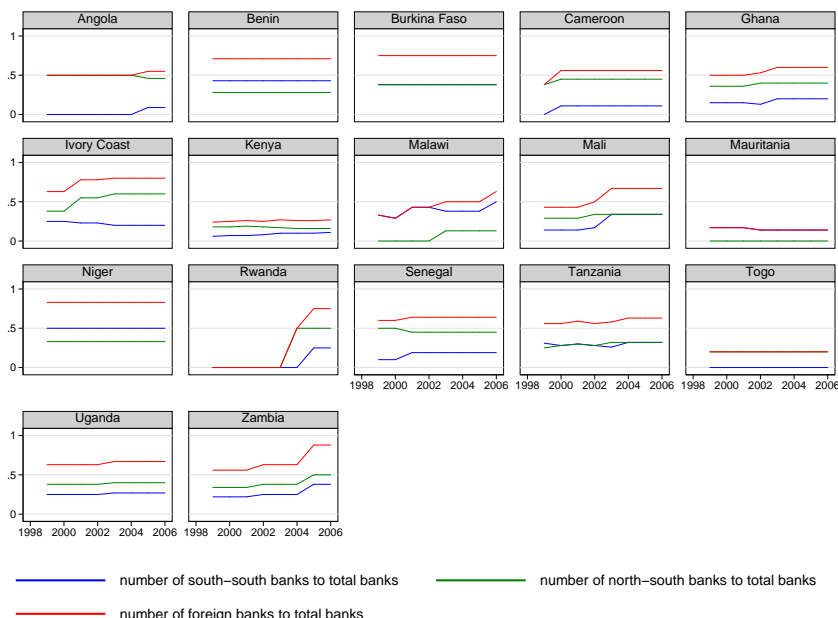
Market share (share) is measured by individual banks' assets to total assets of the banking sector. A higher market share implies more market power and thus a higher net margin (Demirgüç-Kunt et al. 2004). In contrast, if larger banks have a higher market share, they may pass the benefits of economies of scale to their customers in the form of lower margins (Martinez Peria/Mody 2004: 519).

Data on Foreign Bank Presence

Claessens et al. (2008) have recently compiled data on foreign bank presence for 103 developing nations for the years 1995 to 2006. The data set rests upon the IBCAs Bankscope database and covers all developing countries with more than five active banks with reports to Bankscope in 2006. It includes all commercial, savings, cooperative, medium- and long-term credit banks as well as bank holdings and holding companies that reported to Bankscope at least for one year between 1999 and 2006 (Claessens et al. 2008: 39). The first measure of foreign bank presence is given by the ratio of the number of foreign banks to the total number of banks in a country (number measure). The data are available for the years 1995 to 2006. The second measure relates the assets of foreign banks to total banking sector assets (asset measure). These data are only available until 2005, because some banks have not yet reported to Bankscope for the year 2006 when the data base was established. The main difference of this data set compared to earlier ones (for example Beck et al. 2000) is that it differentiates between

²Flamini et al. (2009) proxy credit risk by the loans to customer and short-term funding ratio. Demirgüç-Kunt et al. (1999) measure risk by the loans to total assets (assets) ratio. Another risk measure is the ratio of loan-loss provisions to assets (see Athanasoglou et al. 2008: 127).

Figure 1: Number of Foreign Banks to Total Banks in the Banking Sector



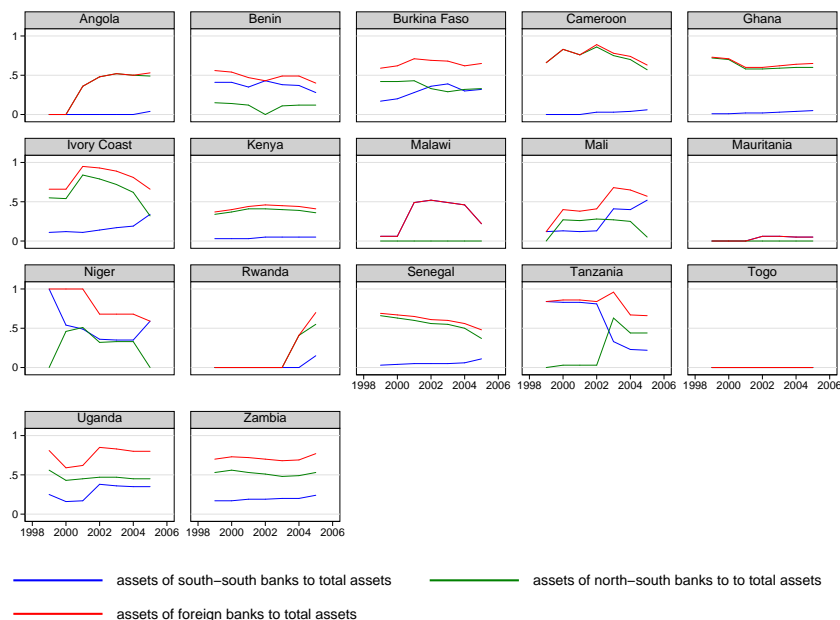
north-south and south-south banks.

While Claessens et al. (2008) provide information on foreign bank presence for most developing countries, this paper concentrates on 17 low-income countries of SSA.³ The published data set on foreign bank presence by Claessens et al. (2008) does not comprise information on the country of origin of each bank considered in the study. Hence, a detailed shareholder analysis was conducted in order to identify the country of origin of all banks in the sample of countries between 1999 and 2006. Relating to the direct shareholder structure, a bank is classified as foreign if 50% or more of the shares are majority held by a foreign investor, and as domestic otherwise. A bank is classified as south-south bank if these shares are held by an investor from another developing country and as north-south bank otherwise. The selection of low-income countries in SSA primarily depends on data availability regarding the shareholders of the banks. Due to the limits of the shareholder analysis, the sample period is limited to the years 1999 to 2006.

Unfortunately, the dataset of Claessens et al. (2008) does not distinguish between regional and non-regional south-south banks. To explore if there are any different effects between regional and non-regional south-south

³Angola, Benin, Burkina Faso, Cameroon, Ghana, Ivory Coast, Kenya, Malawi, Mali, Mauritania, Niger, Rwanda, Senegal, Tanzania, Togo, Uganda and Zambia. According to the World Bank Classification, Angola has been a low-income country until 2003, Cameroon until 2004. Actually, both countries are lower-middle income countries.

Figure 2: Assets of Foreign Banks to Total Banking Sector Assets



banks, the data set of Claessens et al. (2008) was adapted in a further step. Based on the shareholder analysis the share of north-south, regional and non-regional south-south banks assets was newly calculated. As there are some differences regarding the classification of banks compared to Claessens et al. (2008), the calculated ratios do not always fit with the data on foreign bank presence provided by Claessens et al. (2008). All in all, the presence of foreign banks is overestimated (see Tables 10 and 11 in the Appendix).

Country-Specific Variables

To control for the macroeconomic environment, the growth of GDP per capita (growth) and the annual growth rate of inflation (inflation) are used as control variables. These variables are from the World Development Indicators of the World Bank. Growth controls for cyclical output effects which may have a positive effect on bank efficiency. In contrast, a decreasing GDP growth indicates a poorer credit quality and loan defaults, and thus a negative relationship to the efficiency of banks (Flamini et al. 2009: 10). Inflation growth (inflation) may have a positive effect on domestic banks' efficiency in case of expected inflation, when banks immediately adjust their net margins.

The variable concentration is defined as the assets of the three largest banks as a share of assets of all commercial banks. The variable is based on

the Bankscope database and calculated on the country level. It is extracted from the Financial Structure Dataset described in Beck et al. (2000). Including this variable in the estimation is not without problems as the sample of banks which report to Bankscope increases over time (Uhde/Heimeshoff 2009: 1303). Concentration is related to share which is computed at the bank level. Both variables will be equal to one, if there is only a single bank in a country. However, there might also be market with high concentration in which banks have only a small market share (Demirgüç-Kunt et al. 2004: 604).

3.2 Comparison of Domestic and Foreign Banks' Efficiency

In Table 3.2 the efficiency of domestic, north-south and south-south banks is compared. Domestic banks have significant higher net margins compared to south-south banks. North-south banks also have (not significantly) higher net margins compared to south-south banks. The net margins of regional (SSA) south-south banks are (significantly) smaller compared to non-regional (non SSA) south-south banks.

North-south banks have significantly lower costs compared to domestic and south-south banks. Whereas north-south banks may concentrate on the wholesale segment, south-south banks may be more often active in the segment of SMEs, where risks and costs are higher. Moreover, south-south banks have an informational disadvantage compared to domestic banks who have significantly lower costs. North-south banks may overcome some of the informational disadvantages, because of modern practices and technologies. The costs to assets ratio is significantly higher for non SSA south-south banks compared to SSA south-south banks, indicating some informational disadvantages of non SSA multinationals.

banks	net margin	
	N	Mean
domestic	524	7.97
north-south	282	7.60
domestic	524	7.97
south-south	250	7.04
north-south	282	7.60
south-south	250	7.04
non SSA south-south	72	8.86
SSA south-south	178	6.30

a. All values are in percentages.

b. Sample period: 1999-2006.

c. Pairs of entries that are significant different from each other are in boldface.

The results regarding overhead costs are similar to those of Van Horen

(2007) for SSA. She finds that the overhead costs of south-south banks are (not significantly) higher compared to north-south banks. In contrast to this study, Van Horen (2007) finds that net interest margins of south-south banks are (not significantly) higher compared to north-south banks. The different findings compared to Van Horen (2007) may be the result of a different sample of countries (low- and middle-income countries) within another sample period (2000 to 2004) compared to this paper.

banks	costs	
	N	Mean
domestic	526	6.30
north-south	284	5.62
domestic	526	6.30
south-south	243	7.09
north-south	284	5.62
south-south	243	7.09
non SSA south-south	66	9.07
SSA south-south	177	6.35

a. All values are in percentages.

b. Sample period: 1999-2006.

c. Pairs of entries that are significant different from each other are in boldface.

3.3 Specification Analysis and Results

To reduce the impact of outliers, the top and bottom 1% observations of each dependent variable were dropped. To analyze models 1 to 3, pooled ordinary least squares (OLS) is not appropriate as there are significant individual, bank-level effects in each estimation model. These effects are either fixed or random. In the Fixed-Effects (FE) model the individual-specific effects α_i are allowed to be correlated with the regressors, while the latter are uncorrelated with the idiosyncratic error u_{ijt} (Cameron/Trivedi 2009: 231): $\varepsilon_{ijt} = \alpha_i + u_{ijt}$. In contrast, in the Random-Effects (RE) model, α_i is a random variable which is uncorrelated with the regressors. A test of over-identifying restrictions proposed by Schaffer and Stillman (2006) is used to test the RE against the FE model, i.e. if the α_i are uncorrelated with the regressors. The test is similar to a Hausman test, but has the main advantage of being applicable in case of heteroscedastic and clustered errors (Schaffer/Stillman 2006). For both dependent variables, net margin and costs, the RE estimator is rejected at the 1 % level. Hence, the effects are fixed, and pooled OLS and the RE estimation are inconsistent (Cameron/Trivedi 2005: 259).

An alternative to mean-differencing with a FE estimation is to take the first difference (FD) method. This method eliminates the individual-specific

effects α_i , too. Hence, the estimations are consistent when OLS is applied (Cameron/Trivedi 2005: 263). Applying the FD estimator also drops the coefficient for time-invariant variables. In the data set considered in this thesis, there is only a constant number of foreign banks to total banks in some countries between 1999 and 2006. As there has only to be some variation in each variable for some cross-section units (Wooldridge 2002: 266), the regressions include all 17 countries.

In all estimation models cluster robust standard errors are used to correct for heteroskedasticity and within-bank serial correlation (Cameron/Trivedi 2005: 705f.). By clustering on each domestic bank, the errors are correlated over time for each bank, but not across banks. Clustering on the bank level produces consistent estimates of the standard errors if there is serial correlation in the idiosyncratic error term (Drukker 2003: 171). Applying cluster robust standard errors in the estimation model leads to larger standard errors compared to OLS and thus to more insignificant coefficients.

In a first step, the econometric results for equation 1 and 2 are presented. Whereas Tables 1 and 2 include the results for the number measure of foreign bank presence, Table 3 and 4 present the results for the asset measure of foreign bank presence. The first and the second column of each Table show the results for the FE estimator. The third and the fourth column contain the results for the FD regression.

Domestic banks' net margins are positively related to foreign banks' respectively north-south' and south-south banks' presence. The results suggest that despite the presence of foreign banks, domestic banks are able to increase their net margins, indicating a lack of competitive pressure. There are no significant differences between the coefficients of north-south' and south-south banks' presence.

Turning to the bank-specific control variables, we see that there is a an inverted-u-shaped relationship between bank size and net margins. Whereas the positive and significant coefficient for bank size indicates economies of scale, the negative and significant coefficient for *sizesqr* reflects diseconomies of scale of too large banks.

The positive and significant coefficient for costs indicates that domestic banks pass higher costs to their customers through higher net margins. Fee income and liquidity are negatively related to the net margins of domestic banks.

Higher inflation rates imply lower net margins. This result is in contrast to many other studies (e.g. Flamini et al. 2009: 14, Demirgüç-Kunt/Huizinga 1999: 399f., Demirgüç-Kunt et al. 2003: 613). However, Crowley (2007: 12) finds a negative relationship between inflation and inflation-adjusted net interest margins to total assets for English-speaking African countries. Angelini and Cetorelli (2000: 33) also find a negative relation between price-cost margins and inflation, albeit the coefficient for inflation is insignificant. Hence, net margins of domestic banks in SSA seem to be

Table 1: Estimation Results for Net Margin (number measure)

net margin number measure	(1) FE	(2) FE	(3) FD	(4) FD
fbtb	0.0134 (0.0199)		0.0189 (0.0166)	
sbtb		0.0428 (0.0395)		0.0003 (0.0343)
nbtb		0.0010 (0.0224)		0.0254 (0.0167)
size	0.1090*** (0.0316)	0.1110*** (0.0312)	0.1450*** (0.0422)	0.1460*** (0.0419)
sizesqr	-0.0047*** (0.0016)	-0.0049*** (0.0016)	-0.0067*** (0.0020)	-0.0076*** (0.0020)
capital	0.0065 (0.0392)	0.0041 (0.0392)	-0.0527 (0.0436)	-0.0514 (0.0440)
costs	0.4570*** (0.1650)	0.4560*** (0.1640)	0.7410*** (0.1960)	0.7480*** (0.2000)
risk	0.0078 (0.0065)	0.0079 (0.0064)	0.0133*** (0.0046)	0.0135*** (0.0046)
fee income	-0.4500** (0.1740)	-0.4450** (0.1750)	-0.5920*** (0.1590)	-0.5970*** (0.1600)
liquidity	-0.0409* (0.0226)	-0.0410* (0.0225)	-0.0414** (0.0165)	-0.0406** (0.0166)
share	0.0496 (0.0512)	0.0569 (0.0515)	0.1010* (0.0526)	0.1000* (0.0529)
concentration	-0.0418 (0.0323)	-0.0465 (0.0328)	-0.0653** (0.0307)	-0.0650** (0.0306)
growth 10 ⁻⁵	1.32 (41.50)	1.83 (42.00)	0.471 (34.40)	-0.472 (33.80)
inflation 10 ⁻⁵	-11.7** (4.84)	-11.9** (4.77)	-6.93* (3.87)	-6.89* (3.86)
N	351	351	256	256
Rsqr	0.255	0.258	0.387	0.387

Robust standard errors in parentheses
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

countercyclical, rather than banks charge risk premia (Angelini and Cetorelli 2000: 32).

Domestic banks' costs are positively related to foreign bank presence. In the FD estimation the coefficient for *fbtb* is highly significant. The results indicate that there are significant spillover effects between foreign and domestic banks. As the latter have to invest in new practices and technologies, their costs rise in the short-run. Whereas the coefficient for south-south banks is significant at the 0.01 level in the FD estimation, the coefficient for north-south banks is significant at the 0.1 level. The coefficients are different from each other at the 0.05 level: $F(1, 74) = 4.08$, $\text{Prob} < F = 0.046$.

The bank-specific control variable size shows that larger banks gain from economies of scale. The variable *sizesqr* is positive and significant for the FD estimation, indicating an u-shaped-relationship.

The coefficients for capital indicate that well-capitalized domestic banks generally have smaller costs. The negative impact of risk may be explained by the skimping hypothesis proposed by Berger and DeYoung (1997). According to the hypothesis, banks who reduce their efforts in screening borrowers, seem to be more cost efficient in the short-run (Berger and DeYoung 1997: 854). A higher market share implies significantly lower costs. Moreover, domestic banks' costs are positively related to increasing inflation rates. This result is in line with Demirgüç-Kunt et al. (2004: 614).

The results for the estimation with the asset measure of foreign banks' presence are presented in Tables 3 and 4. For net margins, the results

Table 2: Estimation Results for Costs (number measure)

costs number measure	(1) FE	(2) FE	(3) FD	(4) FD
fbtb	0.0068 (0.0183)		0.0330*** (0.0113)	
sbtb		0.0190 (0.0316)		0.0675*** (0.0222)
nbtb		0.0010 (0.0196)		0.0211* (0.0111)
size	-0.0474* (0.0239)	-0.0460* (0.0238)	-0.0835*** (0.0276)	-0.0826*** (0.0287)
sizesqr	0.0014 (0.0010)	0.0013 (0.0010)	0.0026** (0.0012)	0.0025* (0.0013)
capital	-0.0837*** (0.0291)	-0.0848*** (0.0289)	-0.1140** (0.0461)	-0.1150** (0.0462)
risk	-0.0096** (0.0039)	-0.0095** (0.0039)	-0.009** (0.0043)	-0.0091** (0.0043)
fee income	0.1780** (0.0722)	0.1810** (0.0736)	0.0764 (0.0935)	0.0850 (0.0979)
liquidity	-0.0282 (0.0175)	-0.0281 (0.0176)	-0.0175 (0.0112)	-0.0187* (0.0111)
share	-0.0978*** (0.0343)	-0.0946*** (0.0332)	-0.1020*** (0.0366)	-0.1000*** (0.0362)
concentration	0.0191 (0.0195)	0.0170 (0.0195)	0.0284 (0.0201)	0.0276 (0.0202)
growth 10 ⁻⁵	8.85 (21.80)	9.19 (21.40)	11.20 (18.90)	13.50 (19.2)
inflation 10 ⁻⁵	5.71* (2.97)	5.62* (3.00)	5.61* (3.17)	5.50* (3.23)
N	348	348	251	251
Rsqr	0.372	0.372	0.404	0.413

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

are very similar compared to the results in Table 1. However, the sign for the variables *fbtb* and *sbtb* is negative now (but not significant) in the FD estimation indicating some competitive pressure. The results for the dependent variable costs are likewise similar to the previous results for the number measure of foreign bank presence, albeit there are some differences regarding the significance of some variables. Especially, the coefficient for *sbtb* is now significant at the 1% level for the FE estimation. The coefficient for *nbtb* is insignificant for both the FE as well as the FD estimations.

Tables 5 and 6 include the results for the newly calculated data set on foreign bank presence. In the FD estimation for the dependent variable net margin, the coefficient for *ssanew* is negative and significant. This implies that especially foreign banks from the same geographic region induce competitive pressure on domestic banks. For costs, the coefficient *ssanew* is positive and significant. This suggests that domestic banks primarily benefit from spillover effects of technologies and practices from SSA south-south banks.

4 Conclusions

Based on the Eclectic Theory, this paper identified the competitive advantages and expansion strategies of MNBs from developing countries compared to MNBs from industrialized countries in SSA. The theoretical results show that MNBs from developing countries have ownership-specific advantages in

Table 3: Estimation Results for Net Margin (asset measure)

net margin asset measure	(1) FE	(2) FE	(3) FD	(4) FD
fbtb	0.0014 (0.0136)		-0.0023 (0.0130)	
sbtb		0.0038 (0.0221)		-0.0100 (0.0235)
nbtb		0.0003 (0.0158)		0.0011 (0.0161)
size	0.1230*** (0.0361)	0.1230*** (0.0364)	0.1960*** (0.0473)	0.1960*** (0.0473)
sizesqr	-0.0055*** (0.0018)	-0.0055*** (0.0018)	-0.0091*** (0.0022)	-0.0091*** (0.0022)
capital	0.0446 (0.0430)	0.0446 (0.0430)	0.0063 (0.0571)	0.0044 (0.0566)
costs	0.4070** (0.1700)	0.4060** (0.1730)	0.7120*** (0.2220)	0.7150*** (0.2230)
risk	0.0038 (0.0053)	0.0037 (0.0054)	0.0102* (0.0057)	0.0106* (0.0058)
fee income	-0.4860*** (0.1820)	-0.4840** (0.1880)	-0.6230*** (0.1560)	-0.6270*** (0.1600)
liquidity	-0.0550*** (0.0193)	-0.0552*** (0.0191)	-0.0427** (0.0172)	-0.0424** (0.0172)
share	0.0446 (0.0526)	0.0452 (0.0512)	0.1150* (0.0622)	0.1170* (0.0631)
concentration	-0.0590* (0.0342)	-0.0599* (0.0323)	-0.0818** (0.0369)	-0.0805** (0.0350)
growth	0.0002 (0.0004)	0.0002 (0.0004)	0.0001 (0.0003)	0.0001 (0.0003)
inflation 10 ⁻⁵	-10.00* (5.22)	-10.20** (5.09)	-9.23** (4.23)	-9.05** (4.38)
N	303	303	209	209
Rsqr	0.278	0.278	0.379	0.379

Robust standard errors in parentheses
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4: Estimation Results for Costs (asset measure)

costs asset measure	(1) FE	(2) FE	(3) FD	(4) FD
fbtb	0.0170 (0.0128)		0.0228** (0.0104)	
sbtb		0.0386*** (0.0140)		0.0370** (0.0143)
nbtb		0.0083 (0.0155)		0.0170 (0.0113)
size	-0.0540** (0.0271)	-0.0537* (0.0274)	-0.0662** (0.0267)	-0.0662** (0.0267)
sizesqr	0.0016 (0.0012)	0.0016 (0.0012)	0.0018 (0.0012)	0.0018 (0.0012)
capital	-0.0863*** (0.0327)	-0.0831*** (0.0305)	-0.1240** (0.0484)	-0.1190** (0.0473)
risk	-0.0103** (0.0041)	-0.0111*** (0.0040)	-0.0087** (0.0041)	-0.0093** (0.0041)
fee income	0.2070** (0.0912)	0.2220** (0.0954)	0.1290 (0.1190)	0.1350 (0.1210)
liquidity	-0.0347* (0.0177)	-0.0362** (0.0172)	-0.0182 (0.0130)	-0.0192 (0.0129)
share	-0.0987** (0.0390)	-0.0917** (0.0379)	-0.1070*** (0.0383)	-0.1100*** (0.0375)
concentration	0.0425* (0.0237)	0.0350 (0.0218)	0.0452** (0.0223)	0.0425* (0.0225)
growth	0.0002 (0.0002)	0.0002 (0.0002)	0.0002 (0.0002)	0.0002 (0.0002)
inflation 10 ⁻⁵	8.26** (3.36)	6.84* (3.55)	8.78** (3.92)	8.48** (3.82)
N	305	305	208	208
Rsqr	0.430	0.439	0.430	0.434

Robust standard errors in parentheses
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5: Estimation Results for Net Margin (new asset measure)

net margin	(1)	(2)	(3)	(4)
new asset measure	FE	FE	FD	FD
fbtb	-0.0026 (0.0158)		-0.0099 (0.0152)	
nonssasbtb		0.0547* (0.0289)		0.0527 (0.0534)
ssasbtb		-0.0428 (0.0266)		-0.0597** (0.0266)
nbtb		0.0113 (0.0236)		0.0170 (0.0254)
size	0.1250*** (0.0355)	0.1250*** (0.0347)	0.1960*** (0.0473)	0.1930*** (0.0462)
sizesqr	-0.0056*** (0.0018)	-0.0055*** (0.0017)	-0.0091*** (0.0022)	-0.0089*** (0.0022)
capital	0.0441 (0.0427)	0.0432 (0.0400)	0.0068 (0.0570)	-0.0036 (0.0562)
costs	0.4120** (0.1670)	0.4290** (0.1730)	0.7160*** (0.2180)	0.7230*** (0.2220)
risk	0.0038 (0.0053)	0.0048 (0.0054)	0.0099* (0.0057)	0.0116** (0.0058)
fee income	-0.4880*** (0.1810)	-0.4930*** (0.1860)	-0.6240*** (0.1570)	-0.6360*** (0.1610)
liquidity	-0.0547*** (0.0189)	-0.0517*** (0.0192)	-0.0431** (0.0172)	-0.0422** (0.0175)
share	0.0436 (0.0532)	0.0494 (0.0518)	0.1130* (0.0615)	0.1200* (0.0625)
concentration	-0.0595* (0.0340)	-0.0582* (0.0308)	-0.0792** (0.0370)	-0.0696** (0.0330)
growth	0.0002 (0.0004)	0.0003 (0.0004)	0.0001 (0.0003)	0.0001 (0.0003)
inflation 10 ⁻⁵	-10.6** (4.87)	-9.05* (4.93)	-10.1** (4.21)	-7.43 (5.12)
N	303	303	209	209
Rsqr	0.278	0.290	0.380	0.391

Robust standard errors in parentheses
*** p < 0.01, ** p < 0.05, * p < 0.1

Table 6: Estimation Results for Costs (new asset measure)

costs	(1)	(2)	(3)	(4)
new asset measure	FE	FE	FD	FD
fbtb	0.0139 (0.0147)		0.0219* (0.0121)	
nssasbtb		0.0257 (0.0220)		0.0183 (0.0303)
ssasbtb		0.0422*** (0.0133)		0.0346* (0.0181)
nbtb		-0.00202 (0.0209)		0.0141 (0.0169)
size	-0.0529* (0.0267)	-0.0512* (0.0275)	-0.0674** (0.0262)	-0.0660** (0.0266)
sizesqr	0.0015 (0.0012)	0.0014 (0.0012)	0.0019 (0.0012)	0.0018 (0.0012)
capital	-0.0878*** (0.0320)	-0.0840*** (0.0299)	-0.1230** (0.0480)	-0.1200** (0.0475)
risk	-0.0102** (0.0040)	-0.0113*** (0.0042)	-0.0085** (0.0042)	-0.0090** (0.0041)
fee income	0.2070** (0.0902)	0.2220** (0.0949)	0.1240 (0.1170)	0.1290 (0.1190)
liquidity	-0.0335* (0.0181)	-0.0355** (0.0177)	-0.0166 (0.0131)	-0.0172 (0.0131)
share	-0.0976** (0.0393)	-0.0931** (0.0385)	-0.1080*** (0.0379)	-0.1100*** (0.0371)
concentration	0.0370 (0.0253)	0.0303 (0.0229)	0.0381* (0.0222)	0.0362 (0.0222)
growth	0.0002 (0.0002)	0.0002 (0.0002)	0.0002 (0.0002)	0.0002 (0.0002)
inflation 10 ⁻⁵	7.96** (3.52)	5.42 (4.27)	8.96** (4.08)	8.27* (4.42)
N	305	305	208	208
Rsqr	0.424	0.434	0.424	0.426

Robust standard errors in parentheses
*** p < 0.01, ** p < 0.05, * p < 0.1

the form of special management and marketing skills as well as distribution capabilities of cheap and differentiated products and services, especially if they invest in other developing nations like SSA. In contrast, MNBs from industrialized countries more often possess state-of-the-art technologies and practices. MNBs from developing countries are more able to couple with the lack of institutional development and related problems in developing countries compared to their industrialized counterparts. Hence, they also follow market oriented motives when they invest in these countries. As opposed to north-south banks who concentrate on the wholesale segment, south-south banks are more likely to invest in the segment of SMEs as they have the capabilities to deal with the uncertainty in this segment. If domestic banks and south-south banks are more likely to be active in the same target market, south-south banks might induce more spillover and competition effects on domestic banks compared to north-south banks. Hence, from a theoretical perspective, domestic banks' efficiency may be more influenced by the presence of south-south than north-south banks. Thus, this paper contributes to the theoretical literature as it explains the market-seeking strategies of south-south banks, and discusses the extent of spillover effects between north-south, south-south and domestic banks. Moreover, it applies the theories of MNBs and the knowledge gap theory to the African banking sector.

A descriptive comparison between the efficiency of domestic, north-south, regional and non-regional south-south banks shows that domestic banks have higher net margins compared to north-south and south-south banks. The net margins of regional south-south banks are (significantly) smaller compared to non SSA south-south banks indicating their higher efficiency. Whereas north-south banks have significantly lower costs compared to domestic and south-south banks, non regional south-south banks have significantly higher costs compared to regional south-south banks.

The main contribution of this paper is an analysis of the efficiency effects of foreign bank presence, differentiating between north-south, regional and non-regional south-south banks. The empirical results for 80 domestic banks in SSA illustrate that there are indeed spillover effects from foreign bank presence, as there is a positive and significant relationship to domestic banks' costs. Domestic banks have to invest to adopt modern technologies and practices from foreign competitors, and especially from regional south-south banks. The competitive pressure of north-south banks on domestic banks is small. Hence, domestic banks are likely to downscale to other target markets where they are able to increase their margins. In contrast, regional south-south banks have a negative impact on domestic banks' margins.

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Appendix

Table 7: Descriptive Statistics of Bank-Specific Variables

variable	Mean	Std. Dev.	Min	Max	N
costs	6.30	3.25	0.21	23.51	526
net margin	7.97	6.55	-2.30	114.80	524
size	11.18	1.22	7.13	14.47	541
sizesqr	126.53	27.26	50.90	209.39	541
capital	13.86	10.66	-39.48	62.91	541
risk	5.13	21.82	-89.23	431.05	480
fee income	3.81	2.69	-2.62	20.67	507
liquidity	31.23	25.40	-3.42	99.31	435
share	11.57	14.53	0.11	100.00	541

Table 8: Descriptive Statistics of Country-Specific Variables

variable	Mean	Std. Dev.	Min	Max	N
growth	1.36	3.26	-7.53	17.17	587
inflation	14.37	46.56	-3.85	556.94	587
concentration	69.84	14.08	48.80	100.00	570

Table 9: Descriptive Statistics of Data on Foreign Bank Presence (Number Measure)

variable	Mean	Std. Dev.	Min	Max	N
fbtb	43.33	21.65	0	88	587
sbtb	16.06	12.21	0	50	587
nbtb	27.42	15.93	0	60	587

Table 10: Descriptive Statistics of Data on Foreign Bank Presence (Asset Measure)

variable	Mean	Std. Dev.	Min	Max	N
fbtb	46.81	24.65	0.00	100.00	526
sbtb	10.14	13.20	0.00	100.00	526
nbtb	36.67	22.59	0.00	86.00	526

Table 11: Descriptive Statistics of Data on Foreign Bank Presence (New Asset Measure)

variable	Mean	Std. Dev.	Min	Max	N
fbtnew	48.74	24.53	0.00	100.00	521
sbtnew	2.93	5.02	0.00	55.12	521
ssanew	7.33	10.30	0.00	51.52	521
nbtnew	38.48	22.39	0.00	94.59	521