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Domestic banking sector development and cross border mergers and acquisitions in Africa

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Abstract

Recently, economists have started taking a closer look at cross border mergers and acquisitions (M&As) due to its phenomenal rise in the past two decades. This study investigates the relation between banking sector development and cross M&As in Africa. Our sample consists of 11 African countries with data covering the period, 1993–2008. We use a Baltagi panel instrumental variable Error Component Two Stage Least Squares (EC2SLS) estimator with the Baltagi-Chang estimators of the variance components to deal with endogeneity. The results of the study indicate that banking sector development promotes cross border M&A activity in Africa. We also document evidence suggesting that cross border M&A activity drives banking sector development in Africa. Overall, our evidence suggests a two-way causation between banking sector development and cross border M&As.

JEL classification: G10; F21

Keywords: Banks; Cross border mergers and acquisitions; Africa

1. Introduction

In the pecking order of capital flows, foreign direct investment (FDI) sits at the top especially for developing countries (see Razin et al., 1998). According to Kamaly (2007) it was not until the surge in capital flows and the dominance of FDI in the 1990s, that economists started to take a closer look at cross border merger and acquisitions (M&As). FDI can be classified into Greenfield investments and cross border M&As. Greenfield investments involve the foreign firm setting up an entirely new operation in the host country, whereas with cross border M&As, the foreign firm merges or acquires an existing domestic enterprise. Cross-border M&As are a part of economic life in a liberalizing and globalizing world (UNCTAD, 2000). Cross border M&As share the primary virtues of FDI from the point of view of both the host and home (source) countries, such as being an important means of transferring capital, improving technology and efficiency, and stimulating growth (Brooks and Jongwanich, 2011).

Cross border M&As constitute a large share of global FDI flows reaching 80% in the years of merger waves (UNCTAD, 2007 as cited in Stiebale and Reize, 2011). More cross border M&As however take place in developed countries compared to developing countries. Cross border M&As dominate FDI flows in developed countries and are increasingly becoming important for developing countries and regions like Africa. The rise in cross border M&As in developing countries was due to privatization programmes in developing countries, especially in Latin America. In developing countries, cross border M&A share of total FDI is much lower compared to developed countries and outflows are dwarfed by inflows (Calderon et al., 2002).

FDIs, whether they come in the form of Greenfield investments or cross border M&A constitute a major form of financing for developing countries. Banking systems in Africa

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are largely market oriented due to the various structural adjustment programmes that took place across the continent. Although governments no longer intervene heavily in credit markets, lending rates still remain relatively high compared to other regions in the world. In Africa, the banking sector exhibits significantly more depth compared to other sources of finance for firms such as the stock and bond markets. Banks constitute an important part of any financial system and would in several ways aid the cross border M&A process. These include taking part in the settlement process and providing funding pre or post acquisition. Since it is possible for most M&A deals to be settled by cash, we expect that these payments made to the target firm should contribute to the development of the domestic banking sector. This is because these inflows become available to the banking sector to intermediate.

Various reforms have been undertaken in Africa to improve the efficiency of financial markets on the continent and given that cross border M&A has been on the rise in recent times, much insight can be gleaned by studying the relationship between this investment activity and financial market development in Africa. Nakagawa and Psalida (2007) for instance examined how domestic financial markets influence medium-term total capital inflows and the various compositions of capital flows. Though they found that domestic financial markets matter, they did not provide direct evidence as to whether this applies to cross border M&As. Chousa et al. (2008) also assessed whether the growth and quality of capital markets matter for cross border M&As but their study focused on the top emerging markets and sheds no light on Africa.

In this paper, we examine how the banking system in the host country drives cross border M&A activity in Africa. We further analyze the effect of cross border M&A activity on the development of the banking sector in Africa. Essentially, we hypothesize a bi-causal relation between banking sector development and cross border M&As. The reason is that a more advanced banking system is likely to promote cross border M&As. At the same time, by making more funds available to the banking sector to intermediate, cross border M&As can promote banking sector development.

The rest of the paper is structured as follows: Section 2 provides an overview of cross border M&A activity in Africa; Section 3 reviews the extant literature on banks and cross border M&A; Section 4 details the methodology employed for the study; Section 5 discusses the empirical findings and finally Section 6 concludes the paper.

2. Overview of cross border mergers and acquisitions in Africa

Cross border M&As have increasingly become an important mode of entry for foreign investors into Africa and represented about 37% of FDI flows for Africa (including South Africa) over the period 1997–1999, with Egypt, Morocco and South Africa attracting most foreign acquisitions in the late 1990s (UNCTAD, 2000). Cross border M&As were an important contributory factor to the huge increase of FDI inflows to $88 billion in 2008 (UNCTAD, 2009). The total value of cross border M&A sales and purchases involving African companies during the period, 1990–2009 were $115 billion and $100 billion respectively (see Appendix 1). The largest value for international M&A purchases in Africa of $24. 30 billion was recorded in 2006, while the largest sales value of $21.19 billion was recorded in 2008. Cross border M&A activity in Africa increased dramatically in the last decade with over 80% of the total transactions from 1990 taking place in the last decade. Although the average value of cross border M&A sales during the period, 1990–1999 was $1.58 billion, this average had increased to $9.97 billion between 2000 and 2009. On the other hand, the average value of cross border M&A purchases was $2.09 billion during the period, 1990–1999 but had increased to $7.91 billion during the period, 2000–2009.

In terms of Africa's relative importance compared to developing economies, Africa's share of developing countries cross border M&A sales from 2000 to 2008 was about 13.35%. African Transnational Corporations (TNCs) accounted for 10.62% of developing economies cross border M&A purchases during the period, 2000–2008. Compared to the rest of the world, Africa has improved its share of both cross border M&A purchases and sales. Africa's cross border M&A purchases compared to the world increased from 1.39% during the period, 1990–1999 to 5.64% for the period, 2000–2008. In terms of cross border M&A sales, Africa's share of cross border M&A sales increased from 1.05% for the period, 1990–1999 to 6.98% for the period, 2000–2009. Therefore Africa's share of cross border M&A sales is relatively higher when compared to its share of total FDI inflows which stands at about 3% of world FDI inflows. Cross border M&A sales as a share of gross fixed capital formation increased from 1.59% for the period, 1990–1999 to 6.29% for the period, 2000–2008. When compared to GDP however, African cross border M&A sales are very low forming only about 1.16% of total African GDP.

In terms of sectorial distribution of cross border M&A sales and purchases (see Appendix 2) for the period, 2003–2009 (in the case of sales) and 2005–2009 (in the case of purchases), the services sector was the most active sector accounting for about 50% of all cross border M&A sales in Africa. This was followed by the manufacturing sector (33%) and the primary sector (16.6%). Therefore, unlike total FDI inflows where the primary sector accounts for the majority share, in the case of cross border M&A sales, the services sector tend to dominate. African TNCs have been very active in cross border M&A purchases in the services sector (82%). This was followed by the primary (12%) and manufacturing (5.5%) sectors which together accounted for just about 18% of total cross border M&A purchases by African TNCs.

The story about major purchasers for cross border M&A sales by African companies is similar to total FDI inflows into Africa. Just like total FDI inflows, the developed world serves as the major purchasers of cross border M&A sales by African companies. During the period, 1999–2009, developed countries served as purchasers for about 68% of cross border M&A sales by African countries. Asia has increased in importance in terms of offering more selling opportunities for African companies who want to gain access to global resources and international production networks by selling stakes in their companies. Asia

accounted for 75% of purchases made by developing countries of cross border M&A sales by African companies during the period, 1999–2009. Intra African activity is also appreciable, with about 24% of developing country purchases for the period, 1999–2009 coming from African firms. Appendix 3 shows the distribution of cross border M&A sales for Africa categorized by developed and developing countries.

The distribution of cross border M&A sales and purchases varies with some regions being more important compared to others (see Appendix 4). Southern Africa (44.40%) and Northern Africa (44.15%) were the most active sub-regions in terms of cross border M&A sales on the African continent during the period, 2002–2009. The next active sub-regions in terms of cross border M&A sales are West Africa (10.16%) and East Africa (2.05%). In terms of cross border M&A purchases by African TNCs, Southern African firms (58%), led by South Africa are the most active firms. This is followed by Northern African firms (39.53%), East African firms (1.86%) and West African firms (0.69%).

3. Related literature on banking sector development and cross border M&As

Empirical evidence on the relationship between financial markets and cross border M&As is increasingly becoming available in recent times. Studies like Giovanni (2005) focus on financial markets in the acquiring country. Others like Kamaly (2007) and Chousa et al. (2008) examine how financial markets in host countries influence cross border M&A activity. In addition to financial markets, macroeconomic factors as well as institutional indicators factors seem to influence cross border M&As.

Giovanni (2005) finds that financial markets in the acquiring country promotes cross border M&A activity. However, though the stock market variables are significant, their banking sector indicator does not achieve statistical significance in their empirical estimations. Brooks and Jongwanich (2011), on the contrary, find that the banking sector plays a crucial role in facilitating cross-border M&As and that this role is bigger than that of the equity and bond markets. They further find that the development of the equity and bond markets of the acquirer's country positively and significantly influences M&A activity.

Kamaly (2007) examines the trends and determinants of M&As in developing countries in the 1990s and come up with interesting results. He finds that higher levels of stock market activity in developing countries decrease the amount of M&A directed to them but the proxy for banking sector development does not show statistical significance in their estimations. These results are contrary to expectation and theoretical predictions. Chousa et al. (2008) take into consideration nine emerging economies to study the relation between the growth and quality of stock markets along with financial development with cross border M&A activities. They find a strong and positive influence of credit markets on cross border M&As. They find that the effect of credit markets is stronger compared to stock markets. Their results also show that the squared terms of the financial market indicators have an even stronger impact on cross border M&As.

Uddin and Boateng (2010) analyze the trends in the UK cross border M&As using macro-economic factors over the period, 1987–2006. Using multivariate regression analysis, they find that gross domestic product, interest rate, exchange rate, share price and money supply have an effect on both the UK inward and outward cross-border M&As. Vanconcellos and Kish (1998) investigate the determinants of M&As between the U.S. and four European countries. Using OLS and logit models, they find evidence that stock prices in Europe and the U.S., bond yield differentials, and exchange rates influence cross border M&A activity.

Rossi and Volpin (2004) investigate the determinants of cross border M&As using 49 major countries. Controlling for country wealth and economic growth, they find that the volume of M&A activity is significantly larger in countries with better accounting standards and stronger shareholder protection. Rossi and Volpin (2004) also show that hostile deals are relatively more likely in countries with better shareholder protection and that firms in countries with weaker investor protection are often sold to buyers from countries with stronger investor protection. Finally, they find that acquisitions paid with stocks require an environment with high shareholder protection.

Hyun and Kim (2010) find that institutions (proxied by law and order) play an important role in attracting M&A FDI especially when a developed source country must make investment decisions in a developing host country. Coeurdacier et al. (2009) using a Poisson maximum likelihood method also investigate the role of institutional and financial development on cross-border M&As related to manufacturing and service sectors. They find that institutional quality in the host country proxied by the civil liberties index matters in explaining cross border M&As. Countries with poor institutional quality receive less cross border M&A flows due to the fact that they are likely to exhibit a higher cost of capital.

4. Methodology

4.1. Data

We focus on cross border M&A where the acquirer acquires more than 10% of the equity of the African target company. This is because available data on cross border M&As include portfolio investments (investments with shareholding less than 10% of voting equity). To extract the FDI component of cross border MAs, we focus on transactions where the shareholding acquired is equal to or exceeds 10% of voting equity. We include intra-African M&As because evidence provided in Section 2 shows that they are an important component of cross border M&As and moreover we do not average the data for Africa. We however exclude domestic M&As from our analysis since they do not represent cross border activity. We use completed transactions only and the effective date is used to determine the year of the transaction.

We make use of data covering the period 1993–2008. We obtain our data on M&A's from SDC Platinum Database on International Mergers and Acquisitions. Since all data are based on country level data, we aggregate firm level cross border M&A

transactions to obtain country level cross border M&A for each country. The data on domestic credit to the private sector, GDP, trade openness, number of telephone lines per 1000 of the population, internet users per 1000 of the population, deposit rates, lending rates, interest rate spread and CPI were obtained from the African Development Indicators online published by the World Bank. The data on domestic credit provided by the banking sector was obtained from the World Development Indicators and Global Development Finance database online published by the World Bank. Data on capital account openness was obtained from Chinn and Ito (2008). We also obtained measures of civil liberties from Freedom House.

4.2. Empirical model

4.2.1. Effect of banking sector development on cross border M&As

To investigate whether domestic banking sector development drives cross border M&A (CBMA), we specify our empirical model as follows:

$$CBMA_{it} = \beta_0 + \beta_1 Bank_{it} + \sum_{j=2}^{N} \beta_j X_{it} + Z_{it} + \mu_{it} \quad (1)$$

In Model (1), we investigate how banking sector development influences cross border M&A activity.

$CBMA_{it}$ is the log of the value of cross border M&A for country i in time t. $Bank_{it}$ is the banking sector variables for country i in time t. Following the extant literature, we use the ratio of credit provided by domestic banks to GDP and the ratio of private credit by banks and other financial institutions to GDP as indicators of banking sector/credit market development. We control for market size (GDP), trade openness, capital account/financial openness, institutional quality, and infrastructural development. These represent the variables in the vector X_{it}. Z_{it} refers to our set of instrumental variables for the banking sector indicators.

4.3. Motivation for our empirical model

We now motivate our empirical model by justifying the inclusion of the right-hand side variables in the econometric specification. The inclusion of the independent variables are based on theory and empirical evidence suggesting that these variables are significant predictors of cross border M&As in host countries. Our main variables of interest in these estimations are the banking sector indicators.

4.3.1. Banking sector development

We use the ratio of credit provided by domestic banks to GDP and the ratio of private credit by banks and other financial institutions to GDP to capture banking sector development. It is important to include the development of the banking sector/credit markets because in the African context, the credit sector is much more developed compared to other sectors of the financial market such as the stock market and therefore should play a bigger role in intermediating foreign capital. Theory and empirical evidence suggest that banking sector development should influence cross border M&As in host countries. For example, Chousa et al. (2008) show that banking sector development measured by private credit by banks and other financial institutions significantly influences cross border M&As in emerging markets. We therefore hypothesize a positive relationship between banking sector development and the level of cross border M&As in Africa.

4.3.2. Market size (GDP)

We measure market size using the log of gross domestic product (GDP) of the host/target country. Various studies include market size of the host country as a determinant of cross border M&As. Most of these studies (see Giovanni, 2005; Hyun and Kim, 2010; Uddin and Boateng, 2010; Brooks and Jongwanich, 2011) usually find a positive and significant relationship between market size and cross border M&As. Market size is hypothesized to exhibit a positive relationship with cross border M&As.

4.3.3. Trade openness

Trade openness represents the sum of exports and imports scaled by GDP. The impact of trade openness could be positive or negative depending on the type of cross border M&A (see Asiedu, 2002 for the arguments on trade openness and the type of FDI flows). If cross border M&A is market seeking then there should be a negative relationship between trade openness and cross border M&As. However, if cross border M&A is resource seeking, then there should be a positive relationship between trade openness and cross border M&As. We hypothesize a negative relationship between cross border M&As and trade openness because data available from UNCTAD show that most cross border M&A in Africa are in the services sector which are more market seeking in nature. Also countries that are more open to trade are likely to receive less cross border M&As because MNCs may prefer to export to these countries rather than set up an operation in the country.

4.3.4. Financial openness

We use Chinn and Ito's (2008) capital account openness measure to proxy financial openness. The index is a *de jure* measure of financial openness. The index ranges from −1.83 to +2.5. The higher the index, the more open a country is to cross-border capital transactions. Garita and Marrewijk (2007) provide evidence that financial openness in host countries positively stimulates cross border M&A activity. MNCs will find it more difficult to repatriate profits from countries with more restrictive capital accounts and will therefore avoid such countries. We therefore hypothesize that countries with more open capital accounts will attract higher cross border M&As.

4.3.5. Institutional quality

We use the civil liberties index from Freedom House as an indicator of institutional quality. Civil liberties allow for the freedoms of expression and belief, associational and organizational rights, rule of law, and personal autonomy without interference from the state. The index ranges from 1 to 7 with lower values indicating more civil liberties. Countries with better and stronger institutions should receive higher cross border M&As.

Good governance, low levels of corruption, shareholder protection, property rights and political stability are some of the indicators of institutional quality. Hyun and Kim (2010) find evidence supporting the fact that stable institutions, proxied by law and order, in the host country promotes cross border M&A activity. We expect a negative relationship between cross border M&As and the civil liberties index. This is because lower levels of the index indicate higher institutional quality.

4.3.6. Infrastructural development

We also control for infrastructural development of the host country in our empirical modeling. We proxy infrastructure with the number of telephone lines (main lines and mobile phone) per 1000 of the population. This measure has been used widely in the empirical literature. Though this may be a crude proxy for infrastructural development, we believe that this measure should be able to pick up the relative infrastructural development of the countries in our sample due to the cross sectional and time varying dimensions of the indicator. It is reasonable to expect that countries with better developed infrastructure should attract more cross border M&As. A positive relationship is therefore expected between infrastructural development and cross border M&A.

4.4. Effect of cross border M&As on banking sector development

To investigate the effect of cross border M&As on banking sector development, we specify the following model:

$$Bank_{it} = \beta_0 + \beta_1 CBMA_{it} + \sum_{j=2}^{n} \beta_j X_{it} + Z_{it} + \varepsilon_{it} \quad (2)$$

In estimating the effect of cross border M&As on banking sector development, we control for the interest rate spread, macroeconomic stability, financial openness, market size (GDP) and institutional quality. These represent the variables in the vector X_{it}. Z_{it} refers to our set of instrumental variables for cross border M&As.

4.5. Motivation for our empirical model

The main variable of interest in these estimations is the sign and significance of CBMA. We also include other determinants of banking sector development as controls.

4.5.1. Interest rate spread

Interest rate spread is the interest rate charged by banks on loans to prime customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits. McKinnon (1973) type models predict that interest rates should be a significant determinant of financial development. We include the interest rate spread instead of lending or deposit rates individually because of the high collinearity between these variables. Countries with lower spreads are regarded to be more efficient. This is because inefficient banks are more likely to have higher spreads to compensate for their high levels of inefficiency. Therefore, we expect a negative relationship between the deposit spread and banking sector development.

4.5.2. Inflation

We proxy macroeconomic stability by using the log of CPI (inflation). Macroeconomic stability is essential for banks to function efficiently. This is because banks need to earn returns on their capital and loans given out. A stable macroeconomic environment means that businesses can plan and make investment decisions with less uncertainty. This lower uncertainty reduces their risk and makes bank lending more probable. In low income countries, Detragiache et al. (2005) find that keeping inflation under control improves bank efficiency and development. We hypothesize a negative relationship between inflation and banking sector development. In other words, we expect that high levels of inflation will detract from banking sector development.

4.5.3. Financial openness

We use Chinn and Ito's (2008) measure of capital account openness as our indicator of financial openness/liberalization. Baltagi et al. (2008) suggest that relatively closed economies may experience more financial development by opening up their capital accounts. Chinn and Ito (2005) suggest that financial openness promotes financial development but only for countries with good legal systems and quality institutions. Klein and Olivei (2001) using indicators of financial intermediary development point out that capital account liberalization has a substantial impact on growth via the deepening of a country's financial system in highly industrialized countries, but there is little evidence of financial liberalization promoting financial development outside members of the OECD. We hypothesize a positive relationship between financial openness and banking sector development.

4.5.4. Market size (GDP)

Market size is defined as log of GDP and this is expected to have a positive effect on banking sector development. Baltagi et al. (2008) and Law and Habibullah (2009) find that real GDP per capita positively and significantly influences banking sector development suggesting that the level of economic development is important for banking sector development. McKinnon (1973) type models predict that apart from real interest rates, real GDP should be a significant determinant of banking sector development. Yu and Gan (2010) also find that real GDP is positive and significant in explaining banking sector development in Malaysia.

4.5.5. Institutional quality

We include the Civil liberties index as a measure of institutional quality. Baltagi et al. (2008) obtain some evidence that institutions contribute significantly to banking sector development. They use indicators of institutional quality from the International Country Risk Guidance (ICRG). Also, Law and Habibullah (2009) find that institutions matter for banking sector development. We hypothesize a negative relationship between institutional quality (civil liberties index) and banking sector

development. This suggests that better institutions should lead to more banking sector development as lower levels of the civil liberties index indicate better quality institutions.

4.5.6. Estimation procedure

The empirical models are estimated using a panel Baltagi Error Component Two Stage Least Squares (EC2SLS) estimator with the Baltagi-Chang estimation of the variance components. We employ this approach to deal with endogeneity. Endogeneity may arise due to measurement errors, omitted variable bias and simultaneous causality bias. We employ this approach because we hypothesized a bi-causal relation between banking sector development and cross border M&As. The IV approach enables us to consistently estimate the coefficients of the potentially endogenous variables whether caused by measurement error, omitted variables or simultaneous causality bias.

We use the deposit rate and lending rates as well as one lag of the banking sector indicator as instruments for banking sector development. This is because these variables appear in the banking sector development equation but are omitted from the cross border M&A equation. Therefore these instruments will enable us identify the cross border M&A equation. In addition, these variables should serve as valid instruments because they affect cross border M&A through their effect on banking sector development. For cross border M&As, we use the number of telephone lines per 1000 of the population (proxy for infrastructure), the number of internet users per 1000 of the population and one lag of cross border M&A as instruments. Telephone lines per 1000 of the population appears in the cross border M&A equation but does not appear in the bank equation. It is therefore an appropriate shift parameter as it enables the banking sector development equation to be identified. Increasingly, firms communicate using the internet. After the cross border M&A transaction, the new firm will have to communicate with the headquarters. This could be through emails, being part of a network and through video calls. Therefore internet users appears in the cross border M&A equation but is omitted from the banking sector development equation.

5. Empirical results

Table 1 presents the empirical results on the effect of banking sector development on cross border M&A activity. Table 2 also presents the results on the effect of cross border M&A activity on banking sector development. The tests of over identifying restrictions show that the orthogonality conditions are satisfied and therefore our models are well specified.

We first discuss the results relating to the effect of banks on cross border M&A activity. The results show a significantly positive effect of bank credit on M&As. This suggests that banking sector development significantly predicts the level of cross border M&A activity. That is the level of bank credit is useful in predicting the current year's level of cross border M&A activity. The sign on bank credit is positive as expected. Private credit is positive as expected but not significant at conventional levels. Taken together, we document evidence that banking

Table 1
Effect of banking sector development on cross border M&As.

Variables	1 (Bank credit)	2 (Private credit)
Bank credit	0.6955** (0.3495)	
Private credit		0.9274 (0.6327)
GDP	0.9972*** (0.1459)	0.95790*** (0.1662)
Trade openness	−0.0153 (0.0098)	−0.0181* (0.0098)
Financial openness	0.3304*** (0.1037)	0.3249*** (0.1057)
Institutional quality	−0.3525*** (0.1275)	−0.2776*** (0.1479)
Infrastructural development	0.0011 (0.0008)	0.0012 (0.0008)
No. of observations	119	119
No. of countries	11	11
Wald χ^2	166.55	158.80
Prob > χ^2	0.0000	0.0000
Test of Over identifying restrictions	0.2710	0.2288

The dependent variable is the log of the value of cross border M&A. Standard errors are in parenthesis. ***, **, and * indicate significant at 1%, 5% and 10% respectively. *P* values are provided for the test of over identifying restrictions. The tests of over identifying restrictions are performed at the 5% level of significance. Bank credit is domestic credit to the private sector provided by banks divided by GDP; Private credit is domestic credit to the private sector by banks and other financial institutions divided by GDP; Market size is the log of GDP; Trade openness is exports plus imports divided by GDP; Financial openness is Chinn and Ito's (2008) measure of capital account openness; Institutional quality is the civil liberties index and is obtained from Freedom House; Infrastructural development is the number of telephone lines per 1000 of the population.

Table 2
Effect of cross border M&A on banking sector development.

Variables	1 (Bank credit)	2 (Private credit)
Cross border M&A	0.2773*** (0.0766)	0.0930*** (0.0379)
Interest rate spread	0.5373* (0.2800)	0.4533*** (0.1387)
Inflation	−0.2859*** (0.0834)	−0.1174*** (0.0413)
Financial Openness	−0.0187 (0.0525)	0.0124 (0.0260)
GDP	−0.0066 (0.1123)	0.1365*** (0.0556)
Institutions	−0.0563 (0.0584)	−0.1583*** (0.0289)
No. of Observations	86	86
No. of Countries	11	11
Wald χ^2	68.25	175.87
Prob > χ^2	0.0000	0.0000
Test of over identifying restrictions	0.1239	0.0654

The dependent variables are the bank credit and private credit ratios. Standard errors are in parenthesis. ***, **, and * indicate significant at 1%, 5% and 10% respectively. *P* values are provided for the test of over identifying restrictions. The tests of over identifying restrictions are performed at the 5% level of significance. Cross border M&A is the log of the value of cross border M&A; Interest rate spread is the difference between lending and deposit rates; Inflation is the log of CPI; Financial openness is Chinn and Ito's (2008) measure of capital account openness; Market size is the log of GDP; Institutional quality is the civil liberties index and is obtained from Freedom House.

sector development significantly predicts cross border M&A activity. Banking sector development is likely to matter because the acquiring firm may want to finance part of the deal with debt raised from the domestic banking system. Also, the acquiring firm may want to raise funds from the domestic banking system to finance their operations after the deal has been completed. In either case, a more developed banking system makes it easier to raise debt finance at a lower cost and in the quantities that the acquiring firm may require. Foreign firms usually want to raise domestic financing so that they can match their foreign assets with foreign liabilities to reduce their exchange rate exposure. Our results are similar to that of Chousa et al. (2008) who show that banking sector development influences cross border M&As in emerging markets.

With respect to the control variables, market size (GDP) positively and significantly affects cross border M&A activity in both empirical estimations. These results suggest that market size is an important determinant of cross border M&A activity in the African context. This means that bigger countries in terms of GDP attract more cross border M&A activity. Our results therefore suggest that countries with bigger GDP are more attractive because they offer a bigger market and other opportunities to foreign investors. The results are consistent with our hypothesis and prior findings of a positive and significant relationship between GDP of the host country and cross border M&A.

Trade openness enters the cross border M&A model negatively and significantly in our second estimation. We expected either a positive or negative sign for trade openness. We however hypothesized a negative relation between trade openness and cross border M&A due to the fact that most cross border M&As in Africa are in the services sector as reported in Appendix 2. Investments in the services sector are more of market seeking in nature and therefore a high level of trade openness is not needed. However, investments which are resource seeking in nature require a high level of trade openness because these are extracted mainly for export. The negative sign therefore suggests that cross border M&As act as a substitute for trade. Therefore, countries that are more open to trade receive less cross border M&As since foreign companies can rather export instead of acquire a company in the host country.

Consistent with our expectations, we find a positive and significant relationship between financial openness and cross border M&A activity. Our results suggest that African countries with more open capital accounts are likely to receive a higher volume of cross border M&A. This can be explained by the fact that such countries have fewer restrictions on capital and therefore investors are more comfortable investing in such economies. Countries with more open capital accounts for example make it easier for investors to repatriate profits, do not have multiple exchange rates and do not require investors to surrender their export proceeds. The findings are similar to Garita and Marrewijk (2007) who provide evidence that financial openness in host countries positively stimulates cross border M&A activity.

We also find that institutional quality matters for cross border M&As. As expected, the sign on the civil liberties index is negative and significant. The civil liberties index is highly significant at the 1% level in both estimations. The civil liberties index ranges from 1 to 7 with lower levels indicating higher institutional quality. The negative sign indicates that countries with better institutions experience higher cross border M&As. This is likely to be the case because such countries are likely to exhibit a lower cost of capital. Also, countries with better institutions are more transparent, are less uncertain and provide better protection to investors. Our results are also similar to that of Coeurdacier et al. (2009) and Hyun and Kim (2010) who find that countries with poor civil liberties are relatively less attractive to cross border M&As but those with good quality institutions promote cross border M&As.

We now discuss the empirical results on the effect of cross border M&A on banking sector development as presented in Table 2.

We document evidence suggesting that cross border M&As significantly predict the current level of banking sector development. The evidence indicates that cross border M&A activity can spur banking sector development because these deals make more funds available to the banking sector to intermediate. Banks help in receiving payment from the M&A transaction. Also, these firms continue to interact with the banking sector long after the M&A deal is completed. More funds therefore become available to the banking sector to intermediate which in turn can spur banking sector development.

We now discuss our results pertaining to the controls for banking sector development. The interest rate spread enters both models being positive and significant. This is contrary to our a priori expectations. This is because countries that exhibit high interest rate spreads are likely to have inefficient banks that pass on their inefficiency to clients in the form of higher interest rates. The positive sign likely reflects the high interest rate spread in most African countries. In addition, due to the fact the stock markets in Africa are young and largely under-developed; most firms have to rely on banks for financing despite the high interest rates charged.

The empirical results suggest that high levels of inflation detract from banking sector development. Inflation is significant at the 1% level in both estimations. The extant literature suggests that macroeconomic stability is essential for financial markets to function efficiently. Our results are consistent with theoretical models which suggest that inflation may aggravate asymmetries of information in credit markets, reducing the real rate of return and the volume of credit (Huybens and Smith, 1998, 1999). The results are in accordance with our prior expectations and are also similar to that of Detragiache et al. (2005) who find that keeping inflation under control should improve bank efficiency and development in low-income countries.

Market size (GDP) is positively and significantly related to only private credit as expected. This suggests that market size matters for the development of the banking sector. Therefore the level of economic development seems to matter for banking sector development. The demand for financial and banking services is likely to be higher in countries with larger markets and at a higher level of economic development. Our results are similar to Yu and Gan (2010) who find that real GDP is

positive and significant in explaining banking sector development in Malaysia.

We find that good quality institutions promote banking sector development. Therefore countries with better institutions benefit more by experiencing higher banking sector development. This is because creditor rights for example are better protected in countries with quality institutions, collateral can quickly be enforced through the court system and good quality information on borrowers is likely to be available. Due to the fact that banks are also well regulated and depositors receive better protection, more funds are likely to flow into the banking system. Banks can then invest these funds in their portfolio of loans. These findings accord with theory and our expectations. Our results are also similar to Baltagi et al. (2008) and Law and Habibullah (2009) who obtain evidence that, good quality institutions promote banking sector development.

6. Conclusions

This study examined the relationship between domestic banking sector development and cross border M&As. Using data on 11 African countries covering the period, 1993–2008, we document evidence showing a two-way causation between banking sector development and cross border M&As in Africa. The results of this study showed that the development of the banking sector is important in driving cross border M&A activity in Africa. We establish that countries with more developed banking systems tend to benefit more by experiencing higher levels of cross border M&A activity. This is likely to be the case because MNCs may want to finance part of the deal with funds borrowed from the domestic banking system. Post-acquisition, they may also want to finance their continuing operations with funds borrowed from domestic banks since such borrowing may also serve to reduce their exchange rate exposure. Therefore, the level of development of domestic banking systems should matter for MNCs considering cross border M&A activities in Africa. We also find that cross border M&As tend to promote domestic banking sector development. This is because these transactions make more funds available to the domestic banking sector to intermediate.

Our results also suggest that GDP, financial openness and good quality institutions promote cross border M&As. Trade openness exhibits a negative relationship with cross border M&As suggesting that trade substitutes for cross border M&As. We find evidence suggesting that, economic development and good institutions spur banking sector development. The evidence suggests that macroeconomic instability inhibits from banking sector development. Finally, the empirical results show a positive relationship between the interest rate spread and banking sector development. This likely reflects the high interest rate spreads in African countries.

Appendix 1. Cross border M&A activity in Africa (purchases and sales) – billions of U.S. dollars

Year	Cross border M&A purchases (Africa)	Cross border M&A sales (Africa)	Developing world M&A purchases	Developing world – M&A sales	World cross border M&A activity	Africa		Africa		Cross border M&A sales as % of capital formation (GFCF) and GDP	
						% of Developing		% of World			
						Purchases	Sales	Purchases	Sales	GFCF	GDP
1990	0.146	0.485	7.181	16.052	150.576	2.033%	3.021%	0.097%	0.322%	0.504%	0.103%
1991	0.43	0.047	3.258	5.786	80.713	13.198%	0.812%	0.286%	0.031%	0.055%	0.010%
1992	1.746	0.388	6.264	8.198	79.28	27.874%	4.733%	1.160%	0.258%	0.452%	0.081%
1993	0.406	1.806	10.784	14.265	83.064	3.765%	12.660%	0.270%	1.199%	2.075%	0.389%
1994	4.221	0.342	14.36	15.03	127.11	29.394%	2.275%	2.803%	0.227%	0.388%	0.075%
1995	0.645	0.84	13.372	16.493	186.593	4.824%	5.093%	0.428%	0.558%	0.875%	0.166%
1996	2.148	1.805	29.646	35.727	227.023	7.245%	5.052%	1.427%	1.199%	1.837%	0.335%
1997	2.8	4.346	35.21	66.999	304.848	7.952%	6.487%	1.860%	2.886%	4.317%	0.773%
1998	2.678	2.607	21.717	82.668	531.648	12.331%	3.154%	1.779%	1.731%	2.419%	0.473%
1999	5.762	3.117	63.406	74.03	766.044	9.087%	4.210%	3.827%	2.070%	2.943%	0.556%
2000	6.659	3.199	48.496	70.61	1143.82	13.731%	4.531%	4.422%	2.125%	3.056%	0.544%
2001	3.041	15.524	55.719	85.813	593.96	5.458%	18.090%	2.020%	10.310%	15.061%	2.692%
2002	1.999	4.684	27.549	44.41	369.789	7.256%	10.547%	1.328%	3.111%	4.469%	0.794%
2003	1.067	6.427	31.06	40.166	296.988	3.435%	16.001%	0.709%	4.268%	5.168%	0.923%
2004	2.718	4.595	39.809	54.7	380.598	6.828%	8.400%	1.805%	3.052%	3.081%	0.553%
2005	18.496	11.259	83.15	100.633	716.302	22.244%	11.188%	12.283%	7.477%	6.493%	1.160%
2006	24.295	19.806	114.119	89.028	635.94	21.289%	22.247%	16.135%	13.153%	9.577%	1.767%
2007	9.914	7.906	139.677	96.998	1,031.10	7.098%	8.151%	6.584%	5.251%	3.041%	0.610%
2008	8.216	21.193	99.805	100.862	673.214	8.232%	21.012%	5.456%	14.075%	6.631%	1.353%
2009	2.702	5.14									

Source: Figures on Cross Border Mergers and Acquisitions were compiled from various issues of the UNCTAD, World Investment Reports. Gross Domestic Fixed Investment (Capital Formation) and GDP were obtained from the World Bank's African Development Indicators.

Appendix 2. Sectorial distribution of cross border M&A sales and purchases activity in Africa (figures are in millions of U.S. dollars)

Cross border M&A sales

Cross border M&A sales in Africa—sector distribution

Year	Primary	Manufacturing	Services	Total
2003	828 (12.89%)	5066 (78.84%)	532 (8.28%)	6426
2004	2918 (63.50%)	1144 (24.90%)	533 (11.60%)	4595
2005	1060 (9.41%)	1479 (13.14%)	8720 (77.45%)	11,259
2006	3515 (17.75%)	839 (4.24%)	15,453 (78.02%)	19,807
2007	3837 (48.53%)	1367 (17.29%)	2702 (34.18%)	7906
2008	−2055 (−9.70%)	15,639 (73.79%)	7609 (35.90%)	21,193
2009	2579 (50.17%)	−110 (2.14%)	2672 (51.97)%	5140
Total	12,682 (16.62%)	25,424 (33.31%)	38,221 (50.52%)	76,327

Source: Compiled from various issues of the UNCTAD, World Investment Reports.

Cross border M&A purchases

Cross border merger and acquisitions purchases in Africa—sector distribution

Year	Primary	Manufacturing	Services	Total
2005	67 (0.36%)	551 (2.98%)	17,878 (96.66%)	18,496
2006	2176 (8.96%)	365 (1.50%)	21,754 (89.54%)	24,295
2007	5328 (54.74%)	810 (8.17%)	3776 (38.09%)	9914
2008	−261 (3.18%)	1649 (20.07%)	6827 (83.10%)	8216
2009	621 (22.99%)	138 (5.11%)	1942 (71.90%)	2702
Total	7931 (12.47%)	3513 (5.52%)	52,177 (82.01%)	63,621

Source: Compiled from various issues of the UNCTAD, World Investment Reports.

Appendix 3. Major purchasers for cross border M&A sales by African countries (figures are in millions of U.S. dollars)

Year	World	Developed economies	Developing economies (% of developing world)			
		(% of world)	Africa	Latin America and Caribbean	Asia	Total (% of world)
1999	3117	2524 (80.98%)	52 (8.92%)	373 (63.98%)	158 (27.10%)	583 (18.70%)
2000	3199	2380 (74.40%)	769 (93.89%)	0	50 (6.11%)	819 (25.60%)
2001	15,524	14,964 (96.39%)	520 (93.02%)	0	39 (6.98%)	559 (3.60%)
2002	4684	3668 (78.31%)	809 (79.55%)	67 (6.59%)	141 (13.86%)	1017 (21.71%)
2003	6427	3156 (49.11%)	569 (17.40%)	166 (5.07%)	2536 (77.53%)	3271 (50.89%)
2004	4595	2571 (55.95%)	1849 (91.35%)	0	175 (8.65%)	2024 (44.05%)
2005	11,259	9561 (84.92%)	1008 (69.81%)	0	436 (30.19%)	1444 (12.83%)
2006	19,806	9505 (47.99%)	724 (7.28%)	0	9224 (92.72%)	9948 (50.23%)
2007	7906	3462 (43.79%)	22 (0.56%)	0	4056 (103.39%)	3923 (56.21%)
2008	21,193	13,385 (63.16%)	504 (6.55%)	0	7194 (93.45%)	7698 (36.84%)
2009	5140	4328 (84.20%)	927 (116.31%)	−70 (−8.78%)	−60 (−7.53%)	797 (15.80%)
Total	102,850	69,504 (67.58%)	7753 (24.17%)	536 (1.67%)	23,949 (74.65%)	32,083 (32.42%)

Source: Compiled from various issues of the UNCTAD, World Investment Reports.

Appendix 4. Cross border M&A activity in Africa: regional distribution (figures are in millions of U.S. dollars)

Cross border M&A sales

Regional distribution of cross border M&A sales

Year	North Africa	West Africa	Central Africa	East Africa	Southern Africa	Total
2002	598 (12.77%)	52 (1.11%)	993 (21.20%)	30 (0.64%)	3011 (64.28%)	4684
2003	4594 (71.48%)	56 (0.87%)	–	127 (1.98%)	1650 (25.67%)	6427
2004	443 (9.64%)	1685 (36.67%)	74 (1.61%)	285 (6.20%)	2108 (45.88%)	4595
2005	3404 (30.23%)	49 (0.44%)	13 (0.12%)	365 (3.24%)	7428 (65.97%)	11,259
2006	6774 (34.20%)	5178 (26.14%)	20 (0.10%)	271 (1.37%)	7565 (38.19%)	19,808
2007	2182 (27.61%)	1018 (12.88%)	82 (1.04%)	485 (6.14%)	4135 (52.33%)	7902
2008	16,300 (76.89%)	400 (1.89%)	−1800 (−8.49%)	100 (0.47%)	6200 (29.25%)	21,200
2009	1500 (28.85%)	−200 (−3.85%)	–	–	3900(75%)	5200
Total	35,795 (44.15%)	8238 (10.16%)	−618 (−0.76%)	1663 (2.05%)	35,997 (44.40%)	81,075

Source: Compiled from various issues of the UNCTAD, World Investment Reports.

Regional distribution of cross border M&A purchases

Cross border M&A purchases

Year	North Africa	West Africa	Central Africa	East Africa	Southern Africa	Total
2002	5 (0.25%)	–	–	47 (2.35%)	1947 (97.40%)	1999
2003	433 (40.58%)	37 (3.47%)	–	9 (0.84%)	588 (55.11%)	1067
2004	111 (4.09%)	–	–	272 (10.01%)	2334 (85.90%)	2717
2005	14,145 (76.47%)	44 (0.24%)	–	220 (1.19%)	4088 (22.10%)	18,497
2006	5635 (23.19%)	–	–	131 (0.54%)	18,530 (76.27%)	24,296
2007	1401 (14.13%)	–	−61 (−0.62%)	112.4 (1.13%)	8462 (85.35%)	9914.4
2008	4700 (57.32%)	400 (4.88%)	–	300 (3.66%)	2800 (34.15%)	8200
2009	1000 (37.04%)	–	–	200 (7.41%)	1500 (55.56%)	2700
Total	27,430 (39.53%)	481 (0.69%)	−61 (−0.09%)	1291.4 (1.86%)	40,249(58%)	69,390.4

Source: Compiled from various issues of the UNCTAD, World Investment Reports.

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