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Jared Osoro and Evans Osano

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Bank-based Versus Market-based Financial System: Does Evidence Justify the Dichotomy in the Context of Kenya?

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Abstract

This paper aims at analyzing the bank-based versus market-based dichotomy of Kenya's financial system. This is in view of the fact that the financial sector, which is bank dominated, is showing a clear tendency of the banking industry increasingly engaging in capital markets operations. While the motive of such venture from a purely business strategic positioning is the pursuit of revenue diversification, its implication on the overall development of the capital markets is an issue that has received little analytical interest. The fact that banks are being drawn towards capital markets related operations motivates this papers objective of seeking to determine whether these developments are for the exclusive benefit of banks or they engender further capital markets deepening for the benefit of the economy. Deploying a Vector Error Correction Model (VECM), we empirically establish a long-run relationship between the evolution of the banking sector and capital market in Kenya. This is manifested by a co-integrating relationship between credit to private sector and market capitalization, total equity turn over and Treasury bill rate. We therefore infer that there is a coevolving relationship between the capital market and the banking industry. We thus reject the hypothesis that given the dominance of banks, the lure of capital markets to banks is underpinned by the desire by banks to entrench their dominant market position. Consequently, we observe that while superficially the bank-based – market-based contrasting may be justified by there being a dominant subsector in the financial system, the evidence of co-evolution is a pointer to the questioning of the merits of such a strict dichotomy, at least in the context of Kenya.

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Introduction

The Kenyan financial system is dominated by commercial banks. The desire of the banks to consolidate their collective leadership in the financial system is evident in the increasing embrace of capital markets activities not just in the domestic market but in the regional market context. The regional context is observable in the aspiration of a number of Kenyan banks to venture to the rest of the five-member East African Community (EAC) and even beyond while no financial institutions from the other four EAC partners has so far ventured into the Kenyan market. The banking industry in Kenya could thus be seen as a trend setter the East African region with respects to conventional banking business as well as promoting the growth of capital markets.

The keen participation of banks in the capital markets is often in the form of issuance of capital market instruments or facilitation of issuance of such instruments by other entities and supporting the equities market especially during initial public offerings (IPOs). These activities are in addition to the banks' intermediation role as well as in originating, trading and underwriting capital markets transactions and provision of partial credit enhancement. This brings to focus the issue of regulator-regulated motivations in the post-2008 global financial crisis period. The banks' motivation is clearly the desire to diversify their income stream and in the process deliver their returns optimization strategies while the respective regulators' motivation is ensuring systemic stability of the financial system; and the two motivations are not in conflict.

The aspiration by banks in Kenya to aggressively engage in capital markets operations is increasingly becoming evident. As at June 2013, five out of the 10 investment banks register by the Capital Markets Authority (CMA) are affiliates of banks. Affiliates of commercial banks are prominently represented in the CMA registered stock brokers. This

has intensified competition in this market segment given that the standalone stock brokerage firms and investment banks, while meeting the regulatory requirement, may not be able to challenge the financial strength of those players that are backed by banks. Besides depository services, where banks are the only legally mandated institutions, banks are increasingly getting engaged in other capital markets related activities that include financial assets management, advisory services, collective investment schemes.

These developments are intellectually interesting given the focus that financial regulation is drawing in the pursuit of an optimal configuration of banks and capital markets. Of particular interest is the conventional view that the "bank versus market" dichotomy which presupposes that each of these two components of the financial system are in clear competition (Boot and Thakor, 1997; Allen and Gale, 1997; and Dewatripont and Maskin, 1995). If this is the case, then the inference would be that the development of the two is a zero sum game such that each develops at the expense of the other; and the regulators would logically be expected to strike a balance between the two in their attempt to shape the architecture of the financial system.

Given that banks could be assumed to be having an inherent desire to see the perpetuation of a bank-based system, there then must be some underlying incentives that draw banks towards capital markets related operations. What are those incentives? Are they exclusively for the benefit of banks or they engender further capital markets deepening for the benefit of the economy? The possibility that banks' involvement in capital markets is to their benefit, consequently to the benefit in the form of capital markets development and the economy at large implies that such benefits are not a mere consequence but a clear objective.

It is no wonder therefore that these questions are now drawing research interest, at least from a theoretical context. Song and Thakor (2010) have come up with an integrated theoretical framework of the financial system that challenges the conventional view that the interaction between banks and capital markets players is predominantly characterised by competition. In addressing itself how financial systems evolve and the pattern of development that produces the best economic outcome, this analysis concludes that the banks – capital markets interaction has an element of competition, but extends to complementarity and coevolution.

The popular view where capital markets are seen as promoters financial intermediation outside of the commercial banking arena could imply that they are obvious competitors with banks. The objective of our paper is to take the debate in the context of Kenya beyond this conventional view and seek to ascertain whether operations of banks and capital markets exhibit any form of co-evolution. Pursuant to this objective, if evidence of co-evolution is established then the bank-based versus market-based dichotomisation will be brought to question.

The rest of the paper is organised as follows: We present in the next section an analytical context that underlies the bank-based–market-based dichotomisation of financial systems, briefly addressing the issue of whether it matters as a basis for pursuance of the market players and regulators' respective institutional mandates. We subsequently articulate the situational analysis of the financial system with a view to motivating key hypotheses emerging from the prevailing market situation with regard to the relativity of bank versus market in the intermediation process. We then set the empirical strategy as a basis for testing these hypotheses, upon which we make inferences on the study question.

Analytical Context

The debate on financial systems – whether bank-based or market-based – could be a century old (Levine, 2002) and spans over many issues that include the definition of the system based on the 'bank-market' dichotomy (Llewellyn, 2006; Allard and Blavy, 2011). Many of the studies on the subject tend to coalesce around the distinction of the two being based on their relative weight in financing the non-bank private sector, with the system being considered bank based when funding to the non-bank private sector from banks exceed funding from the capital markets and vice versa.

There are qualifications to the classification of bank-based and market-based financial systems that arise from the consideration that the distinction between the two systems is not rigid because in practice the economic arrangements in individual countries are complex and of considerable varying degrees, and that no country is a "pure" model and therefore making it limiting to draw distinctions that are too stark. Nonetheless, with further augmentation of the basis of the definition to include such aspects as share of activity (total value of traded equities as a ratio of GDP versus total bank credit to the private sector as a ratio of GDP) and efficiency measurements of either the stock exchange or the banks, past studies have been able to classify the financial systems in these two categories.

Does the bank-based–market-based classification of the financial system really matter? The answer depends on whether one is looking for a perspective on the role of finance in economic growth or the role of finance in economic stability and recovery from a downturn. The finance–growth nexus debate seems settled, with a number of studies – spanning from as far as Goldsmith (1969) to Levine and Ross (1998) and Caprio Honohan (2001) – having a common conclusion

that finance does not merely follows and adapts but precedes and contributes to economic performance. Levine (2002) explores the role of finance with an explicit consideration of the bank-based – market based classification concludes that such classification may not necessarily be a fruitful way of distinguishing financial systems, further observing that although overall financial development is strongly linked with economic growth, such a relationship could not be taken to be bolstered by either a bank-based or market-based viewpoint.

When it comes to economic recovery, recent studies (for instance IMF, 2009 and Allard and Blavy, 2011) indicate explicitly that the market-based – bank-based classification of financial systems matter when it comes to driving an economy's recovery. These studies argue that market-based economies recover faster than bank-based economies and that outcome obtains even after controlling for the nature of the downturn, the policy response, and the degree of economic flexibility.

The studies that ascribe quick recovery to the type of financial system provide empirical confirmations of what has largely been observed in the developed markets from the 1990s. Although the overarching view was that a diversified financial system helps cushion the economy in times of stress, a heavy leaning towards banks may be constraining the pace of rebound in the event of a an economic slowdown. As an illustration, when the American banks found themselves in trouble in 1990 as a result of the bust in the property market, the capital markets came in handy as an alternative source of finance. In 1998 when the American capital markets were faced with liquidity challenges, banks came in handy to pick a big portion of the slack.

In Asia where there seems to be a strong leaning to bank lending with a less well developed corporate debt market, a credit crunch would be prolonged. This was what bedevilled Japan and most of East Asia in the 1990s. With hindsight, there was a realisation that nobody worried about Asia's dependence on bank lending, with the villain attitude being "the lack of a spare tyre is no concern if you do not get a flat" (Greenspan, 1999) and that the realisation that these economies needed a "spare tyre" came in too late into a credit crunch. In other words, the system was hoodwinked by the period prior to 1990s crisis that was characterised three decades of phenomenally solid economic growth, largely financed through the banking system.

The contrast that is of this paper's interest is one between the deeper financial markets in Asia, Europe and America and the less deeper emerging world especially Africa. The assets of financial intermediaries and the size of the bond and stock markets tend to be bigger in relation to GDP in the former than in the latter. It is evident that the banking system is often quick to develop in the latter category, but capital markets take longer because they of necessity require a financial infrastructure that provides – among other things – adequate accounting standards, a legal system that enforces contracts and protects property rights, and bankruptcy provisions.

The lure to seek to move the bank-based financial system towards a market-based system on account of the potential to promote quick recovery by no means takes away the attractive characteristics of a bank-based system. But then, as Levin (2002) elucidates, these attractive features while to some degree highlight the strengths of the bank-based system, they tend to emphasize the weakness of the market-based system. Similarly, the arguments for a more market-leaning system while highlighting its strengths tend to emphasize the weaknesses of the bank-based system. We could argue the fact that the debate on this financial systems classification substantially dwells on each side pointing at the weaknesses of the other side is an *ab initio* indication of why the justification, indeed the necessity, of such dichotomy is brought to question.

The synergetic effects of a system that seeks to reconcile the weaknesses of either system, thereby promoting a balance between the two in pursuit of diversification, helps to enhance the intermediation process. Merton and Bodie (1995) outlines how such synergies result in the efficient performance of the function of clearing and settling payments, pooling of savings, pooling of risks, promoting transfers across time and space, and reducing information costs. In the process it helps consolidate the finance-growth nexus.

But then the finance-growth nexus that has largely been a consensual affair is lately drawing some nuanced qualification. Two recent studies (Cecchetti and Kharroubi, 2012; and Arcand, Berkes and Panizza, 2012), while acknowledging the conventional view that the growth the growth in bank balance sheets - which implies expansion in private credit – helps drive economic growth, controversially claim that such relationship has a limit. Arcand et. al., 2012, observes that once private borrowing hits close to an equivalent of 100 per cent of GDP it starts to slow down growth. The same observation is made by Cecchetti and Kharroubi (2012) who, albeit without explicitly committing to some quantification, indicate that there comes a point – which in their view advanced economies seem to have well exceeded – where more banking and more credit is associated with lower growth.

In view of the implication of banks diversification on financial systems stability, especially post-1998 global financial crisis, the current regulatory thinking seems to be inclined towards much more scrutiny. It may not be a full turning of the clock to the so-called Glass-Steagall Act of 1933 in America, which prevented deposit-taking banks from underwriting or dealing in equity or securities[3]. There are strong recommendations from jurisdictions such as the United Kingdom for retail banking ringfencing (see Independent Commission on Banking, 2011, also referred to as Vickers's Report).

3 This piece of legislation was subjected to amendments in 1999 – the so-called Gramm–Leach–Bliley Act – that removed barriers in the market among banking companies, securities companies and insurance companies that prohibited any one institution from acting as any combination of an investment bank, a commercial bank, and an insurance company. This amendment was taken as a response to "market realities".

The Vickers's Report argues that "the purpose of the retail ring-fence is to isolate those banking activities where continuous provision of service is vital to the economy and to a bank's customers in order to ensure that this provision is not threatened as a result of activities which are incidental to it and, that such provision can be maintained in the event of the bank's failure without government solvency support". According to the report, a retail ring-fence should be designed to make it easier to sort out both ring-fenced banks and non-ring-fenced banks which get into trouble, without the provision of taxpayer-funded solvency support; insulate vital banking services on which households and enterprises depend from problems elsewhere in the financial system; and curtail government guarantees, reducing the risk to the public finances and making it less likely that banks will run excessive risks in the first place.

While it may not matter whether a financial system is bank-based or market-based when it comes to the finance–growth nexus, the classification helps to identify the extent of diversification that can potentially speedy recovery in the event of an economic downturn. The impetus for financial sector diversification, in particular banks venturing aggressively to capital markets operations, emanates from the natural response to opportunities in the capital markets arena.

Even with such response by banks, cognisance need to be given to the emerging critique of the "bank versus market" dichotomy and especially the underlying implicit assumption that such categorisation necessarily implies that the two – banks and capital market players – are in competition. Recent studies (for instance Song and Thakor, 2010) argue that banks and markets exhibit three forms of market interaction; they compete, they complement each other and they co-evolve.

The issue of competition perception is easy to fathom in scenarios where non-bank private sector is seeking to raise funds for either working capital or investment and has options of either issuing of a market debt instrument or seeking bank credit. The banks–market complementarity argument hinges on the observation that strong institutions like banks are necessary for proper functioning of markets, and well-functioning markets are essential for banks to be sufficiently well capitalised so as to expand credit availability to borrowers without increasing the risk of the banking system beyond prudent levels.

Financial systems are typically plagued by two frictions that impede borrowers' ability to obtain financing. One is the "certification friction" where even a creditworthy borrower may erroneously be denied credit due to imperfect information about credit quality. The other is the "financing friction" where a borrower faces various eternal costs that may force a good investment seeking external finance as opposed to internal funds to be forgone. In the analysis of Song and Thakor (2010), banks are better suited in lowering certification friction given their credit analysis capabilities while markets are better at resolving

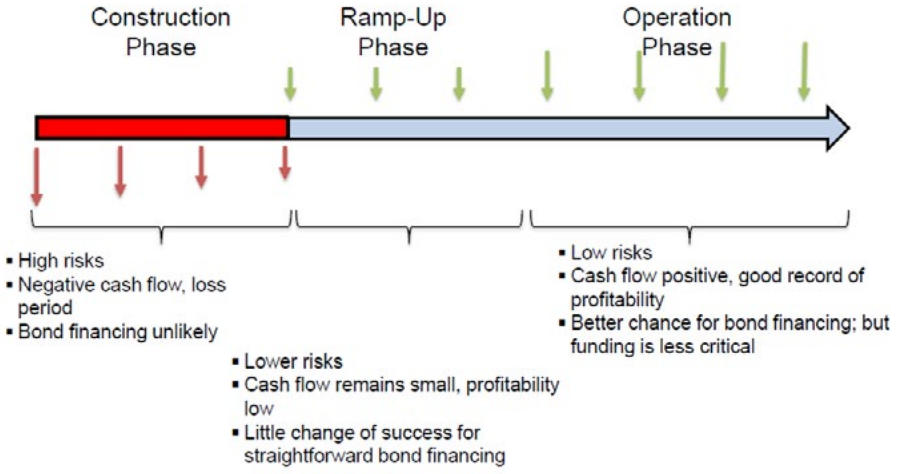
financing friction by providing a more liquid market thereby lowering borrowing costs.

The insights of Song and Thakor (2010) provide two channel through which the markets and banks and co-dependent. The first channel is through securitisation where once a bank has certified borrower's credit quality the market finances the borrower; in this case the system operates optimally such that banks focus on credit analysis and markets focus on financing. Improvement in credit analysis boosts confidence consequently encouraging greater investor participation, in the process improving liquidity, lowering financing friction and spurring capital markets evolution.

Nevertheless, we could bring in a qualification to this argument by asserting that the incentive structure of banks needs to be taken in its correct perspective such that when banks do not have a "skin in the game" in the form of a financial stake, they may be motivated to pass bad credit to investors. We can stretch this argument such that when it comes to infrastructure financing, banks could finance a given project a project during the construction period and then have "take out financing" through the capital markets when the capital markets when the project is generating cash flows. This is illustrated by Figure 1.

The second channel is through risk-sensitive bank capital requirement. Given that capital markets reduce

Figure 1: Banks and Markets Co-Dependence



financing friction and lowers banks' cost of equity, they enable banks to raise additional equity to extend riskier loans to previously shunned clients. On account of the fact that riskier clients are making it into the banks' portfolio, investing in improved credit analysis technology becomes imperative. It is through bank capital that markets advance the effect of lowering the financing friction. Such lowering of friction ends up being transmitted to banks, in the process allowing banks become more effective in resolving certification friction and expanding the lending scope. These channels that lead to feedback loops create a virtuous cycle where each of the two components of the financial system benefit from the development of the other, in other words they co-evolve.

The Situation Analysis

It is apparent that the Kenyan financial system is bank-based and far less developed than that of the leading financial market in Africa, and obviously relatively much less developed than that of the leading world economies **(Table 1)**. As **Figure 2** shows, all the characteristics of a bank-based system as opposed to a market based system are clearly evident in the key indicators. Even then the level of credit by the banking sector is way lower than that prevailing in key emerging and developed markets, signifying that even the dominant banking sector in Kenya has substantial slack before attaining the status of a mature emerging market such as South Africa's.

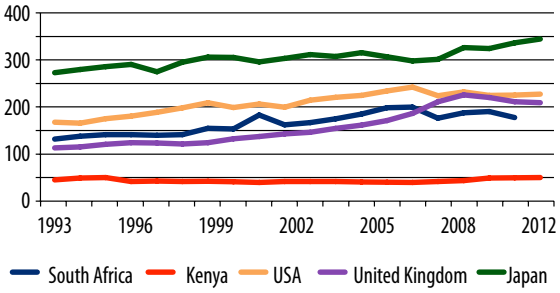
Table 1: Comparative Banks and Market Characteristics

	Kenya	Income Group Median	High Income OECD Median	Expected Median	Malaysia	Nigeria	South Africa
Banking							
Domestic Bank Deposits / GDP (%)	39.0	26.0	89.7	29.7	132.5	33.3	62
Private Credit/ GDP (%)	31.1	17.8	104.2	21.1	118.2	21.0	70.8
Lending-Deposit Spread (%)	8.2	9.4	2.8	7.7	1.8	8.4	3.3
Stock Markets							
Number of Listed Companies	57	18	225	63	921	192	348
Stock Market Capitalisation / GDP (%)	39.7	17.7	62.2	14.0	156.9	21.5	159.3
Stock Market Turnover Ratio(%)	8.1	1.6	52.2	5.0	28.6	8.8	54.9
Debt Markets							
Outstanding Domestic Private Debt Securities / GDP (%)	1.8	-	56.9	0.8	67.7	-	20.4
Outstanding Domestic Public Debt Securities / GDP (%)	19.3	-	36.1	27.5	48.3	-	36.7
Non Financial institutions							
Insurance Premiums (Life) / GDP (%)	1.1	0.1	2.8	0.1	2.9	-	10.9
Insurance Premiums (Non-Life) / GDP (%)	1.6	0.5	2.0	0.5	1.4	-	2.1
Insurance Company Assets / GDP (%)	8.3	-	10.2	1.8	20.9	-	-
Mutual Fund Assets / GDP (%)	0.0	-	17.7	0.7	31.4	0.3	37.8
Pension Fund Assets / GDP (%)	14.8	-	13.3	5.8	56.8	-	-

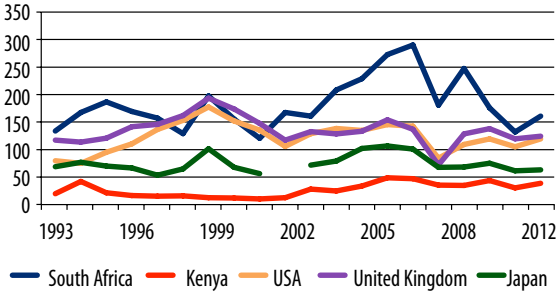
Source: World Bank Data (2012)

Figure 2: Bank and Market Indicators

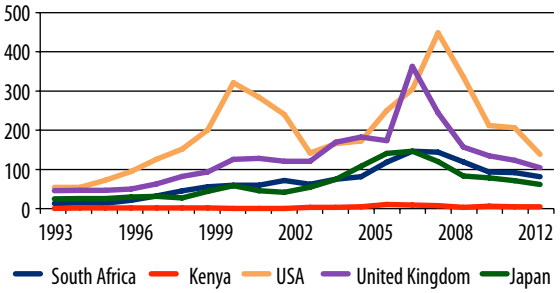
Domestic Credit by Banking Sector (%) of GDP



Market Capitalisation of Listed Companies (% of GDP)



Value of Stocks Traded (% of GDP)



Source: World Data

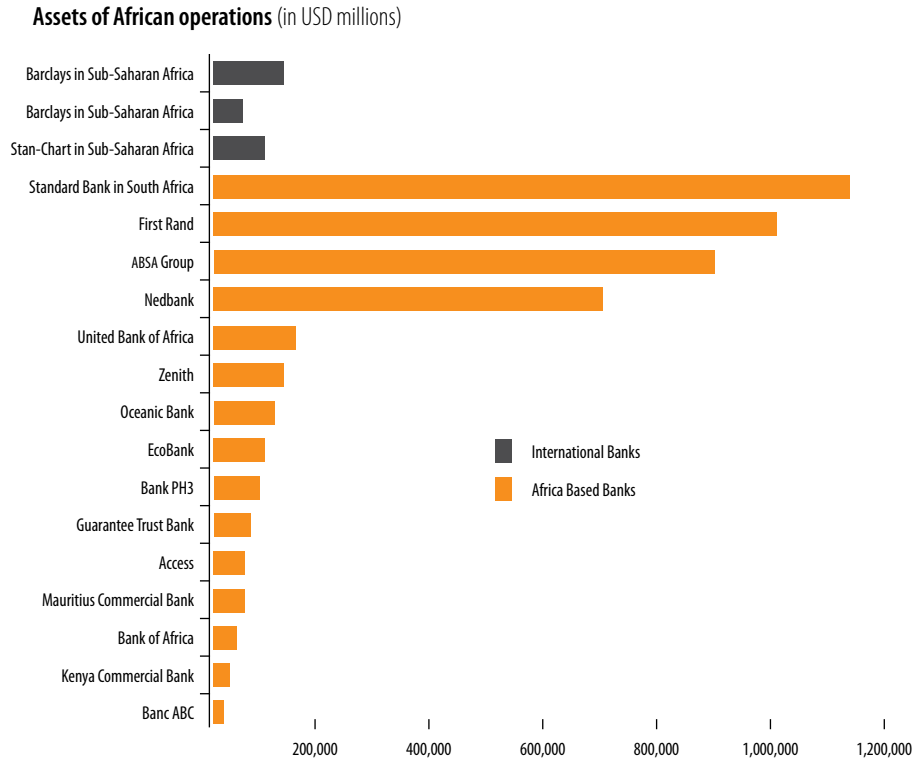
Even with its relatively low level of development compared to the deeper emerging and developed markets, the Kenyan banking industry is being emboldened by the fact that in emerging markets, local and regional banks are increasingly beating global ones. This is the case in Brazil, Russia, China, India and South Africa where local banks are the dominant players. In Kenya, the classification by the Central Bank of Kenya (CBK) (CBK, 2013) indicate that out of the top six dominant banks with more than 50 per cent of the market share three are local banks and are ranked higher than their international peers in that category.

By no means are we suggesting that international banks are on the run. On the contrary, international banks are engaged in robust business in Kenya, the wider East Africa and the rest of the continent. A number of international banks with branches and commercial banking network across the continent have an advantage in the sense that they not only serve multinational firms but also lending to local firms as well as help in mobilizing money abroad. The international resource mobilization on behalf of governments is an area where there is a clear opportunity for banks. As Fuchs et.al. (2013) observe, although

the role of international banks in Africa remains vital, African markets clearly depict a case of dominance by cross-border operations of African financial groups. Such dominance is seen in the total assets of African banks in Sub-Saharan operations substantially dwarfing those of international players **(Figure 3)**.

International banks have the opportunity to bring in expertise to handle specific transactions on a short-term basis. However, their ability to compete with local banks is likely to be constrained by the possibility of limited local knowledge and contacts compared to local banks whose dominance is increasing over time. With the strides that local banks are making comes the ability to narrow the skills gap given that they are now able to competitively attract talent. Nevertheless, international banks are up to now relatively more active in the Kenya and the rest of Sub-Saharan Africa all this is gradually changing.

Figure 3: Cross-Border Operations of African and International Banking Groups



Source: Lukonga, I (2010)

The tide in favour of more capital markets deals is gradually drifting towards local banks especially those with a regional spread. Nonetheless the capacity of the local banks to structure international transactions is a constraining factor even amongst those that have ventured, or aspire to venture, into capital market related areas. The constraints to the local banks in this respect go beyond capacity; their lack of distribution networks abroad tends to favour banks with a global footprint, implying therefore that this lucrative undertaking is amenable, at least for now, to international banks[4]. This can only mean that the entry point for many local banks into the capital markets related activities will be to elbow the stand-alone investment banks and stockbrokerage firms out of their comfort zones. In this regard, the local banks are now the bigger players that take the bigger slice of the institutional investors, government divesture deals and advisory services. Indeed they are able to lock in the institutional investors with whom they have built relationships over time.

While in the Kenyan case it is the banks in the first and second tier based on market share and capitalization that have evident keenness for capital market undertaking, there is scope for smaller banks to seek a piece of the market. Smaller banks should, at least theoretically, find the capital markets appealing if they have a chance of punching above their "height and weight" and seek to undertake than their balance sheets can permit. This is especially so given that they fact a higher funding costs as the CBK data on interest rates spread amongst different categories of banks confirms; they are thus less likely to be more competitive than larger banks who likely to be more liquid.

As the case for banks participation in capital markets in being considered, the balance between business development and stability especially in the post 2008 global financial crisis dispensation. The safeguards that capitalization requirement mandated under the so-called Basel 3 regime will affect commercial banks' ability to extend long-term credit; this points to the possibility of capital markets being an avenue for funding such credit requirements. But the pace of such potential positive influence on capital markets will be tempered by the CBK's piece-meal adoption of the Basel 2 and 3 accords, a stance that is not unique to Kenya. Further regulatory requirements such as single obligor limits on the back of emerging of new sectors such as oil and gas which implies that local banks cannot service these sectors on their small balance sheet but would still want to be involved through intermediation. This makes the capital markets the natural resort.

The evolution of the local capital markets which, as we already observe, are still shallow regardless of the long history has to confront a number of challenges some of which have been identified by a Capital Markets

4 When the Government of Kenya went for a syndicated loan in May 2012 as a prelude to a sovereign bond issue, the facility was arranged and underwritten by Citigroup PLC (New York, Standard Chartered Bank PLC (London) and Standard Bank Group (Johannesburg). All these banks have a local presence in Kenya and are therefore leveraging on their wider network.

Authority (CMA) study (CMA, 2008). These include a small corporate bond market on the back of a highly liquid banking system that creates an issuance disincentive, reluctance of corporations to meet information disclosure, investor concentration, and limited understanding of the fixed income market.

The outlined bond market challenges can be classified into three categories. The first category has those challenges revolving around the macro and regulatory environment that increase the cost of issuance while reducing incentive. The bond issuance framework requires speed and is cost sensitive; the fact that in Kenya we have bond issues with a tariff structure that is indexed on hard currencies – form instance the bonds issued by the Kenyan power sector players, a corporate governance environment for state owned enterprises that is wanting thereby making potential issuance unattractive, and a high and volatile interest rates regime, means that issuance is contained.

In the second category we have an investor base whose size and capacity to invest is limited; we have a professional investor segment that is underdeveloped while there is limited capacity for fixed income analysis given the equities orientation mindset and a weak credit culture. The third category has those challenges associated with project preparation gap such that there are limited packaged and bankable projects; this is linked to weak sub nationals with limited ability to issue bonds without government guarantees as well as limited private sector participation in infrastructure development

The allure of the capital markets to banks, which could ultimately move the financial system from being bank-dominated to a level of diversification that allows a bigger market leaning component, albeit not necessarily bigger than the bank-leaning component, needs to interrogated on the back of the outlined situation analysis. The formalization of this analysis will entail the testing of the flowing hypotheses:

- **Null Hypothesis:** The lure of capital markets to banks is underpinned by the desire by banks to entrench their dominant market position.

- **Alternative Hypothesis:** Even with clear signs of bank dominance in Kenya's financial system, there is evidence of banks and capital markets co-evolving.

Empirical Evaluation

We contend that while the two channels provide by Song and Thakor (2010) that underpin the co-movement of markets and banks have an important theoretical appeal, their applicability in the context of an economy such as Kenya is limiting. The first channel is hinged on the premise that banks specialise in 'certification' and the markets specialise in 'financing'. This stark contrasting is clearly a limiting assumption in a system like Kenya's that is characterised by an evident dominance of banks in the credit market.

The second channel through risk-sensitive bank capital requirement that implicitly assumes that the avenue of raising additional capital by banks is exclusively the market may equally be somewhat limiting. Although in the Kenyan case we have a few banks that have resorted to the market to raise capital, the other banks listed at the Nairobi Securities Exchange are part of the government divesture programme and therefore no further capital was raised in the process. As at the end of 2012, eleven out of the forty three banks in Kenya are listed in the 62-listed companies' bourse.

These limitations by no means rule out the co-evolution of banks and the capital market in our context. We argue that the nexus of the banks-markets co-evolution could potentially be traced to the respective relationship with the economy's performance. We can develop this argument by first looking at the capital markets as represented by the stock market operations and how they relate to the economy's performance.

There is a clear case that the economy impacts corporate earnings in terms of revenue and costs. It is on this account that stock prices generally tend to reflect investor expectations for future corporate earnings and consequently for future economic growth. This is an

argument on how the economy drives the stock market. But there is an equally plausible argument that the developments in the stock market could well be simply a reflection of expectations about the economy. In that case, the developments of the stock exchange provide useful information about the developments of the economy and not the other way round.

The statistical correlation between the quarterly changes in the Nairobi Stock Exchange 20-share index and the quarterly real GDP growth for Kenya over the period 2006 and 2012 is weak **(Figure 4)**. Since the stock market is driven largely by expectations, one could assume that the changes in economy's performance are somewhat more correlated with the market performance in the subsequent quarter. But even this relationship is not any stronger in a significant manner (**Figure 5**). It is possible that more liquidity from pension funds and foreign investors rather than economic fundamentals has a big influence on the state of the market. Similarly the non-increasing number of listed companies implies that even if the listed stock are over(under)valued, they could remain so for some time. The above state of how capital markets and economic performance

Figure 4: Kenya's GDP and NSE 20-Share Index (2006 – 2012)

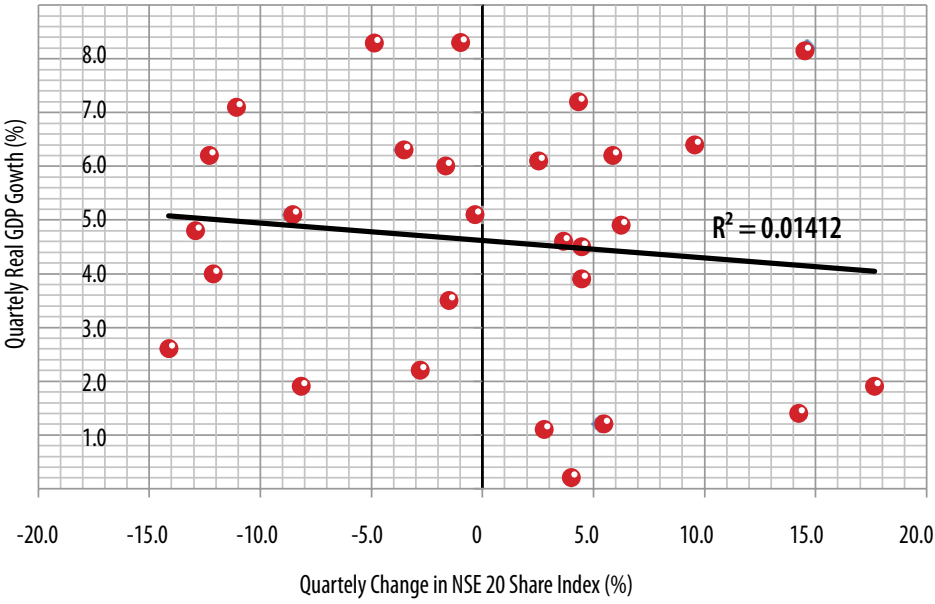
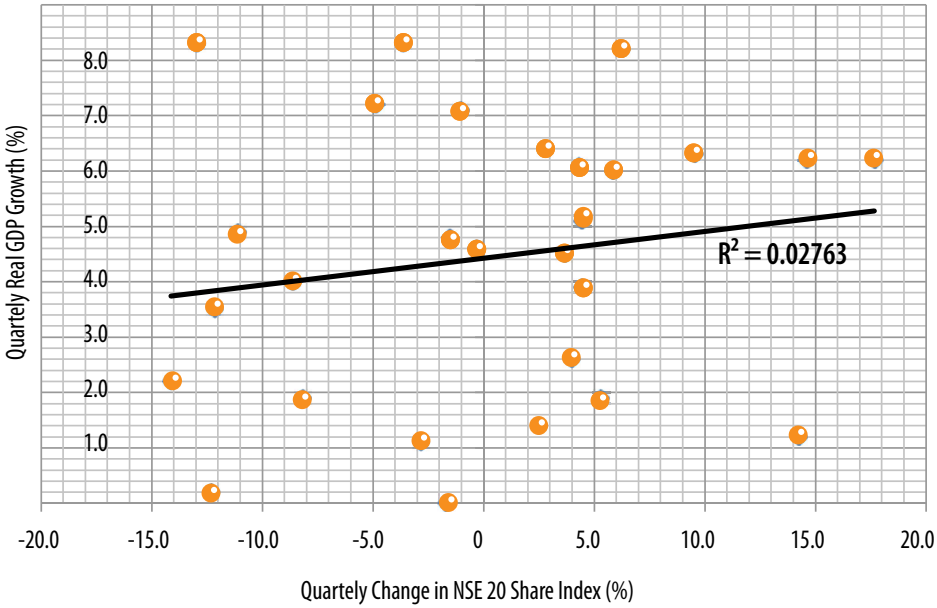


Figure 5: Kenya's GDP and NSE 20-Share Index (2006 – 2012) - Lagged Effect



relate confirms our earlier observation on the relatively low level of development – and therefore influence – of the capital markets on the economy's overall performance. But such relationship is not unique to the less developed markets (Sandte, 2012; Ritter, 2005). Even then, the influence of the capital markets development on the economy's performance would be expected to increase as the markets deepen. The deepening will obviously be influenced by what happens in the banking industry that dominates the financial sector.

4.1 The Model

Our empirical strategy is to develop the link between the banking industry and capital markets given the likely obvious influence that the two comments would have on each other. We therefore model the relationship between growth in bank and the stock market development. The growth in banks is measured by the amount of credit advanced to the private sector (*CREDIT*) over the specified period in time. On the stock market development we use the three stock

market indicators. First is the market capitalization *(MKT CAP)* which proxies market size and second is equity turnover *(EQTY TUROVER)* which measures the liquidity of the stock market with regard to meeting the financial needs of the economy, and third the an index that tracks share price changes *(INDEX)*.

In order to obtain credible estimates of the model, we incorporate control variables in the model to avoid biased parameter estimates. These control variables are deemed core in influencing the growth of banks. These include: Treasury bill rates (*TBR)* to measure the short term interest rates; and Inflation rate and broad money supply (M2) as a percentage of GDP which measures the level of monetisation in the economy. This ratio is comparatively higher when businesses are highly financed by bank loans and low when financial markets are mature.

The model specification, which assumes a non-linear relationship amongst these variables and therefore specifies them in the natural log form, is as follows:

$$lnCREDIT = \alpha_0 + \alpha_1 lnMKT\,CAP + \alpha_2 lnEQTY\,TUROVER + \alpha_3 lnINDEX + \alpha_4 lnTBR + \alpha_5 lnINFL + \alpha_6 lnM2 + \mu$$

The study used monthly data for the period January 2000 to December 2012. Data on Stock index, stock market capitalization and total number of shares traded was obtained from Nairobi Securities Exchange while data on GDP, broad money supply, inflation and short term interest rates was obtained from the central bank of Kenya. Our assumption of a non-linear relationship if further collaborated by fact that stock market data is high frequency data as compared to growth in the bank's balance sheet and GDP.

We run the unit root test to determine the stationarity of the data series first, then cointegration test for the variables. The Johansen cointegration test reveals the presence of long run relationship. In addition, all that variables become stationary upon the first differencing thus; we use Vector Error Correction Model (VECM) for estimation.

4.2 Estimation Results

The estimation results for the VECMD are given in **Table 2**. The system equation results revealed the presence of the long run relationship between credit to private sector and market capitalization, equity turn over and Treasury bill rates. The estimated parameters are all significant at 5 percent significance level. A two period lag in market capitalization positively impacts on credit to private sector, with the estimated coefficient being 0.4861. Market capitalization as a measure of stock market's size is positively correlated with ability to mobilize capital and diversify risk. Its positive significant long run relationship is an indication of the existence of coevolution between bank based and the market based economy.

However, a one period lag in equity turnover is negatively related to the amount of credit advanced to the private sector with a coefficient of -0.0048 robust at 95 percent confidence interval. This implies that a rise in the equity turn over leads to a decline in the amount of credit to the private sector. The explanation behind this result is that equity turnover is highly cyclical and therefore may portray the "darker side of liquidity" effect especially during the crisis period. The period covered in this study was prone to shocks in the form of post-election violence and the global financial crisis which may have exaggerated the negative relationship.

In addition the Treasury bill rate at any time period is found to be greatly determined by the previous period's credit to private sector with a coefficient of 0.0330. Inflation, broad money supply and the NSE index are found to be insignificantly related to private sector credit. The overall empirical findings nonetheless point towards a coevolution relationship between the capital market and the banking industry, even with clear signs of bank dominance in Kenya's financial system. We therefore reject the null hypothesis that the lure of capital markets to banks is underpinned by the desire by banks to entrench their dominant market position.

Table 2: VECM estimation results

Error Correction:	D(CREDIT)	D(EQTY)	D(MKT)	D(M2)	D(INDEX)	D(INFL)	D(TBR)
CointEq1	-1.015344	0.027069	-0.055737	0.011426	-0.000701	-1.64E-06	-5.20E-06
	(0.15339)	(0.40997)	(0.09463)	(0.01515)	(0.00039)	(2.8E-06)	(1.9E-06)
	[-6.61945]	[0.06603]	[-0.58901]	[0.75431]	[-1.78045]	[-0.58041]	[-2.71987]
	0.0000	**0.9474**	**0.5560**	**0.4509**	**0.0753**	**0.5618**	**0.0066**
CointEq2	-0.004587	0.001046	-2.16E-06	-0.000311	-2.57E-06	-1.75E-08	-3.07E-08
	(0.00086)	(0.00230)	(0.00053)	(8.5E-05)	(2.2E-06)	(1.6E-08)	(1.1E-08)
	[-5.32303]	[0.45413]	[-0.00406]	[-3.65755]	[-1.16026]	[-1.09751]	[-2.85871]
	0.0000	**0.6498**	**0.9968**	**0.0003**	**0.2462**	**0.2727**	**0.0043**
D(CREDIT(-1))	0.000310	0.046958	0.057395	-0.011414	0.000160	5.99E-07	3.34E-06
	(0.12557)	(0.33560)	(0.07746)	(0.01240)	(0.00032)	(2.3E-06)	(1.6E-06)
	[0.00247]	[0.13992]	[0.74092]	[-0.92050]	[0.49514]	[0.25838]	[2.13470]
	0.9980	**0.8888**	**0.4589**	**0.3575**	**0.6206**	**0.7962**	**0.0330**

Error Correction:	D(CREDIT)	D(EQTY)	D(MKT)	D(M2)	D(INDEX)	D(INFL)	D(TBR)
D(CREDIT(-2))	0.015725	0.117334	0.056008	-0.005036	0.000317	2.32E-07	2.15E-06
	(0.09059)	(0.24212)	(0.05589)	(0.00895)	(0.00023)	(1.7E-06)	(1.1E-06)
	[0.17358]	[0.48460]	[1.00216]	[-0.56289]	[1.36293]	[0.13880]	[1.90510]
	0.8622	**0.6281**	**0.3165**	**0.5736**	**0.1732**	**0.8896**	**0.0571**
D(EQTY(-1))	-0.000256	0.091146	-0.001169	0.000127	2.13E-05	-3.45E-07	-4.30E-07
	(0.03112)	(0.08316)	(0.01920)	(0.00307)	(8.0E-05)	(5.7E-07)	(3.9E-07)
	[-0.00823]	[1.09598]	[-0.06087]	[0.04119]	[0.26711]	[-0.60136]	[-1.11037]
	0.9934	**0.2734**	**0.9515**	**0.9672**	**0.7894**	**0.5477**	**0.2671**
D(EQTY(-2))	0.002152	-0.206889	-0.010244	0.000187	-6.69E-05	-8.73E-07	2.48E-07
	(0.03086)	(0.08248)	(0.01904)	(0.00305)	(7.9E-05)	(5.7E-07)	(3.8E-07)
	[0.06973]	[-2.50836]	[-0.53810]	[0.06152]	[-0.84475]	[-1.53253]	[0.64549]
	0.9444	**0.0123**	**0.5906**	**0.9510**	**0.3985**	**0.1257**	**0.5188**
D(MKT(-1))	0.336247	0.025530	-0.035615	-0.026962	-0.000335	-5.55E-06	9.87E-07
	(0.21163)	(0.56562)	(0.13056)	(0.02090)	(0.00054)	(3.9E-06)	(2.6E-06)
	[1.58887]	[0.04514]	[-0.27279]	[-1.29008]	[-0.61696]	[-1.42013]	[0.37453]
	0.1124	**0.9640**	**0.7851**	**0.1973**	**0.5374**	**0.1559**	**0.7081**
D(MKT(-2))	0.486159	0.349535	0.045532	-0.047934	-8.73E-05	2.48E-06	-1.78E-07
	(0.20458)	(0.54679)	(0.12621)	(0.02020)	(0.00053)	(3.8E-06)	(2.5E-06)
	[2.37638]	[0.63925]	[0.36076]	[-2.37258]	[-0.16620]	[0.65564]	[-0.07000]
	0.0177	**0.5228**	**0.7184**	**0.0179**	**0.8680**	**0.5122**	**0.9442**
D(M2(-1))	0.406806	1.447499	-0.468136	-0.312224	0.000202	-6.80E-06	-1.02E-05
	(0.89654)	(2.39622)	(0.55310)	(0.08854)	(0.00230)	(1.7E-05)	(1.1E-05)
	[0.45375]	[0.60408]	[-0.84639]	[-3.52644]	[0.08772]	[-0.41101]	[-0.91201]
	0.6501	**0.5459**	**0.3975**	**0.0004**	**0.9301**	**0.6812**	**0.3620**
D(M2(-2))	0.125369	1.843164	1.716821	-0.151842	0.000771	-2.99E-05	-1.29E-05
	(0.90443)	(2.41731)	(0.55797)	(0.08932)	(0.00232)	(1.7E-05)	(1.1E-05)

Error Correction:	D(CREDIT)	D(EQTY)	D(MKT)	D(M2)	D(INDEX)	D(INFL)	D(TBR)
	[0.13862]	[0.76249]	[3.07693]	[-1.70002]	[0.33198]	[-1.78851]	[-1.14464]
	0.8898	**0.4460**	**0.0022**	**0.0895**	**0.7400**	**0.0740**	**0.2526**
D(INDEX(-1))	-49.85423	125.2270	30.64735	3.355641	0.185668	0.000794	-0.000599
	(52.9595)	(141.547)	(32.6721)	(5.23004)	(0.13600)	(0.00098)	(0.00066)
	[-0.94137]	[0.88470]	[0.93803]	[0.64161]	[1.36518]	[0.81243]	[-0.90878]
	0.3468	**0.3765**	**0.3485**	**0.5213**	**0.1725**	**0.4167**	**0.3637**
D(INDEX(-2))	-69.68395	-115.0851	2.553590	16.69204	0.081368	0.000846	-0.000510
	(52.0451)	(139.104)	(32.1080)	(5.13975)	(0.13365)	(0.00096)	(0.00065)
	[-1.33891]	[-0.82733]	[0.07953]	[3.24764]	[0.60880]	[0.88066]	[-0.78644]
	0.1809	**0.4083**	**0.9366**	**0.0012**	**0.5428**	**0.3787**	**0.4318**
D(INFL(-1))	65.64649	-7834.375	-375.7082	-819.3455	-3.509475	0.294664	0.044042
	(4563.72)	(12197.7)	(2815.48)	(450.693)	(11.7198)	(0.08423)	(0.05683)
	[0.01438]	[-0.64228]	[-0.13344]	[-1.81797]	[-0.29945]	[3.49813]	[0.77501]
	0.9885	**0.5208**	**0.8939**	**0.0694**	**0.7647**	**0.0005**	**0.4385**
D(INFL(-2))	-1490.784	12668.46	6915.816	-141.8687	11.60696	0.035280	0.057621
	(4603.03)	(12302.7)	(2839.73)	(454.575)	(11.8208)	(0.08496)	(0.05732)
	[-0.32387]	[1.02973]	[2.43538]	[-0.31209]	[0.98191]	[0.41525]	[1.00528]
	0.7461	**0.3034**	**0.0151**	**0.7550**	**0.3264**	**0.6781**	**0.3150**
D(TBR(-1))	814.1147	27475.10	-7476.537	-924.7566	-22.46659	-0.102657	0.268174
	(7006.53)	(18726.7)	(4322.51)	(691.934)	(17.9931)	(0.12932)	(0.08725)
	[0.11619]	[1.46716]	[-1.72967]	[-1.33648]	[-1.24862]	[-0.79380]	[3.07374]
	0.9075	**0.1427**	**0.0840**	**0.1817**	**0.2121**	**0.4275**	**0.0022**
D(TBR(-2))	4055.464	-29835.64	-2265.268	-1370.661	-15.47688	0.043442	-0.106922
	(6187.17)	(16536.7)	(3817.03)	(611.017)	(15.8889)	(0.11420)	(0.07704)
	[0.65546]	[-1.80420]	[-0.59346]	[-2.24324]	[-0.97407]	[0.38040]	[-1.38781]
	0.5123	**0.0715**	**0.5530**	**0.0251**	**0.3303**	**0.7037**	**0.1655**

Error Correction:	D(CREDIT)	D(EQTY)	D(MKT)	D(M2)	D(INDEX)	D(INFL)	D(TBR)
C	-1467.455	-32650.93	-3538.441	11548.61	0.039407	0.267114	0.116846
	(13088.6)	(34982.7)	(8074.73)	(1292.58)	(33.6123)	(0.24158)	(0.16298)
	[-0.11212]	[-0.93335]	[-0.43821]	[8.93457]	[0.00117]	[1.10568]	[0.71692]

Conclusion

The Kenyan banking industry is evidently pursuing an aggressive engagement in capital markets operations. While the motive of such venture from a purely business strategic positioning is the pursuit of revenue diversification, its implication on the overall development of the capital markets is an issue that has received little, if at all, analytical interest.

Kenya's financial system is bank-dominated implying therefore that in the conventional bank-based – market-based nomenclature banks could be assumed to be having an inherent desire to perpetuate the status quo. The very fact that there are incentives that draw banks towards capital markets related operations motivates this paper's objective of seeking to determine whether these developments are for the exclusive benefit of banks or they engender further capital markets deepening for the benefit of the economy.

This paper has deployed a VECM to empirically establish a long-run relationship between the evolution of the banking sector and capital market in Kenya. This is manifested by a co-integrating relationship between credit to private sector and market capitalization, total equity turn over and Treasury bill rate. The implication here is the increase in market size as measured by market capitalization increases the level of private sector lending in the economy given its ability to mobilize capital and diversify risk.

We therefore infer that there is a coevolving relationship between the capital market and the banking industry, even with the clear signs of bank dominance in Kenya's financial system. We reject the hypothesis that given the dominance of banks, the lure of capital markets to banks is underpinned by the desire by banks to entrench

their dominant market position. In essence, the keen interest and participation of commercial banks in capital market activities is a reflection of the potential of the former to promote the latter's development and not a desire to entrench dominance at its expense. Consequently, we observe that while superficially the bank-based – market based contrasting may be justified by there being a dominant subsector in the financial system, the evidence of co-evolution is a pointer to the questioning of the merits of such a strict dichotomy, at least in the context of Kenya.

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