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Credit Market Imbalances and Adjustments in Kenya

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31

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Credit Market Imbalances and Adjustments in Kenya

By Jared Osoro and Kiplangat Josea

Abstract

The Kenyan credit market is characterised by imperfections that manifest themselves in imbalances in the form of credit gaps where supply deviates from its long-run trend. This paper extends the analysis of the credit market adjustment process beyond the conventional price mechanism, recognising that process rigidities hinder the market from adjusting in a manner that closes the credit gap by estimating a Seemingly Unrelated regression (SUR) model. The empirical results show that the imbalances, at least, measured by the credit-to-GDP gap have a significantly positive effect on credit supply while contemporaneous credit-to-GDP gap enters significantly and with a positive sign on the asset quality equation. Based on these we make inferences on the implication of the adjustment process that entails an interaction between the business and financial cycles, and between fundamentals and sentiments, on regulatory policy. Specifically, we make inferences on how expectations of capital requirements for banks under the Basel regimes, especially Basel III and its Countercyclical Capital Buffers (CCB) will help in ameliorating the persistence of market imbalances as could be implied by the credit gap.

Keywords: *Credit Imbalances; Credit Market; Credit Supply; Non-Performing Loans.*

JEL Codes: *E31, E32, E44, E51*

1.0 Introduction

Credit markets are often characterised by imperfections that manifest themselves in deviations from long-run trends. The persistence of the credit gap, defined as the difference between the credit-to-GDP ratio and its long-term trend, depends on the depth of the market, its structure, and the interaction between business cycles and financial cycles (see for instance Drehman and Tsatsarinis, 2014; Stremmel, 2015; Gökalp, 2018).

At the core of this interactive process is the interplay between market fundamentals as characterised by a feedback loop that runs from credit booms accompanied by low default rates, rising asset prices and slow debt accumulation to default traps accompanied by fast debt accumulation and falling asset prices (Greenwood, Hanson and Jin, 2016). The credit cycle illustrating the feedback as laid out by Greenwood et. al., (2016) embeds itself in sentiments in the form of market players' beliefs of either a bullish or bearish credit growth that is self-fulfilling, at least in the short-run.

This paper seeks to explore the connection between credit market fundamentals and sentiments in the Kenyan context, cognisant that the relationship between the two potentially underpins market imbalances and delays the adjustment process towards credit gap closure. Pursuant to this broad objective we specifically interrogate three notions.

- The first one is whether the credit market outcomes in Kenya are extrapolative. This entails analysing whether the credit market is path dependent such that when the market is calm, and defaults are low, credit will continue to grow, and vice versa.

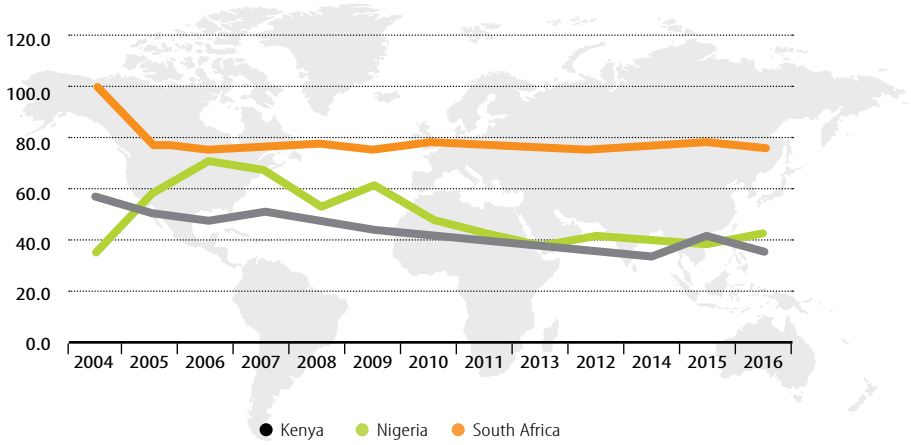
- The second one is whether there is any causal influence of the business cycle on the credit market developments in Kenya. This entails examining whether fluctuations in economic activity, which is essentially the business cycle, feed into the developments in the credit market. Changes in banks' claims on the private sector as well as the change in asset prices – such as

those of equities – represent the financial cycle.

- The third one is the postulation that, like in other markets, the financial cycles in Kenya characteristically have high amplitude and long duration compared to that of the business cycles. This points to the booms and bust cycles that can potentially lead to systemic vulnerabilities that require regulatory action to prevent degeneration into a crisis.

We pursue the outlined objectives in this paper, cognisant that the banks' claims on the private sector are an adequate representation of the economy's credit market and the fact that Kenya's financial system is bank-led (Osoro and Osano, 2014; Arize, Kalu and Nkwor, 2017). This is an attribute common with the financial markets in the African continent, including those of Nigeria, which is the biggest economy in terms of nominal output, and South Africa, the economy with the deepest financial system. The extent of market concentration, simply defined as the proportion of banking assets held by the largest three banks in the economy, is not only lower than that of Nigeria and South Africa, it has consistently been on a gentle decline (**Figure 1**). Being less concentrated does not necessarily make the industry relatively more market competitive, for the nexus between concentration and competition has been established to be tenuous (Berger, et. al., 2004).

Figure 1: Market Concentration (%)



Source: World Bank Financial Structure Database (July 2018 version)

The Kenyan credit market, like all others, is characterised by imperfections. Even then, much of the credit market perspectives are interestingly not underpinned by due acknowledgement of such imperfections. Instead, discourse is overtly hinged on a market assumed to clear based on the adjustments arising from interest rates changes. The limiting assumption underpinning such perspective is that, as the price for credit, the interest rate is the principle mechanism around which demand and supply adjusts to an equilibrium notion in the economy. As argued by De Vroey (2001), even if theoretically there is a possibility of demand and supply to adjust based on a change in price conditions, there is process rigidity that results in the adjustment to a new equilibrium after a shock is protracted. Even in the case of financial market prices being more flexible, in instances overshooting (Dornbusch, 1976), than other markets such as labour where wages are sticky, the assumption that demand and supply adjust to some equilibrium at every period is unjustifiable.

Our paper's contribution is therefore to extend the analysis of the credit market adjustment process beyond the conventional price mechanism, recognising that process rigidities hinder the market from adjusting in a manner that closes the credit gap. We make inferences on the implication of the adjustment process that entails an interaction between the business and financial cycles, and between fundamentals and sentiments, on regulatory policy. Specifically, we make inferences on how expectations of capital requirements for banks under the Basel regimes, especially Basel III and its Countercyclical Capital Buffers (CCB) will help in ameliorating the persistence of market imbalances as could be implied by the credit gap.

The rest of the paper is organized as follows. **Chapter 2.0** of the paper sets the analytical context using stylized facts. This is followed in **Chapter 3.0** by a two-pronged empirical analysis of the credit market. From one front we assess the link between bank credit outcome and the market parameters namely the credit gap, asset quality, risk premium, real output growth, inflation and equities' price developments. From the other front, we assess the influence of asset quality on all the other variables. These assessments are undertaken in a simultaneous framework. With 2000 to 2017 as the period of analysis, the empirical model provides for the assessment of the global financial crisis of 2008 and the Banking (Amendment) Act of 2016 that introduced a cap on lending rates. In **Section 4.0** key findings and inferences are presented while **Section 5.0** the paper concludes based on the empirical findings.

2.0 Analytical Context

Central Bank of Kenya (CBK) statistics indicate that from 2000 to 2017, the net assets of the Kenyan banking system grew astronomically from an equivalent of USD 5.6 billion to USD 38.8 billion. The nine-fold growth over the 18-year period coincides with the Kenyan economy's nominal GDP expansion from USD 14.1 billion to USD79.5 billion – a nearly six-fold expansion – which superficially indicates an underlying vibrant banking system that intermediates efficiently for the economy's progress.

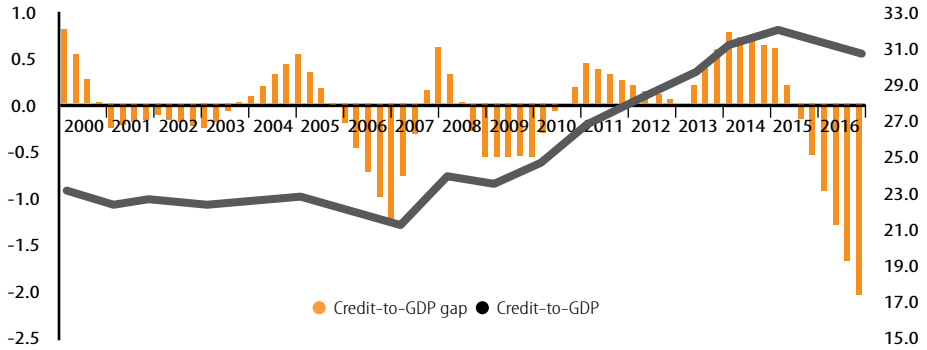
The rise in the net bank assets from an equivalent of 25 per cent of GDP in 2000 to 49 per cent by the end of 2017 masks the underlying credit market imbalances. Unravelling the imbalance entails an estimation of the credit-gap and delineating its evolution over the study period.

Figure 2 presents the credit-to-GDP ratio as well as the credit-to-GDP gap. The credit gap is estimated by using the time-series filter proposed in Hodrick and Prescott (1997), known as the HP filter. The HP filter is a common technique used to decompose a time series, such as the credit-to-GDP ratio, into two components. The first is a trend component that captures low-frequency movements in the credit-to-GDP ratio. The second is the gap (or cyclical) component, which measures deviations in the credit-to-GDP ratio from its trend.

We measure the trend with a one-sided Hodrick-Prescott filter. The backward-looking filter is run recursively for each period and the gap calculated as the difference between the actual value of the variable and the value of the trend at that point. The smoothing parameter is set to 400 for quarterly data in line with Borio and Drehamnn (2009) because financial cycles are assumed to be four times longer than traditional business cycles. Furthermore, Drehmann et al. (2011) in their work show that the choice of this smoothing parameter outperforms alternative values. In using the HP filter, we also remain cognisant of limitations associated with it. First, the

HP filter is sensitive to the starting and ending period, rather it suffers from the "end-point bias" (Coudert and Pouvell, 2010) and it fails to consider the initial level of credit into account. Similarly, this approach does not consider the existence of structural breaks arising either due to policy or regulatory reforms or any other structural changes that may fundamentally affect the degree of financial sophistication (Cubeddu et al., 2012).

Figure 2: Credit-to GDP Gap (Left Axis) and Credit-to-GDP (Right Axis)

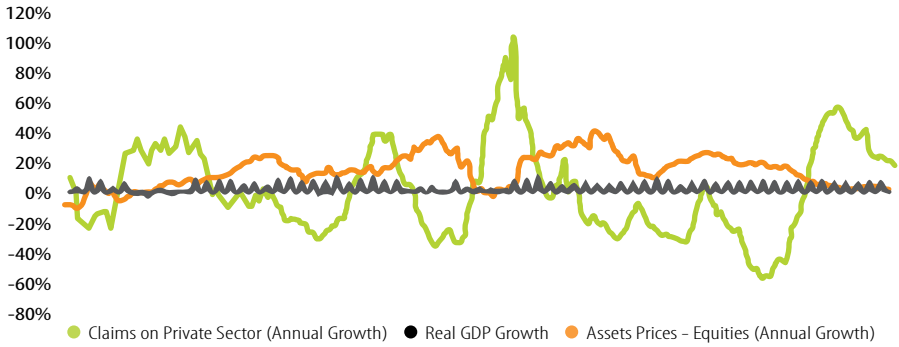


Source: BIS Credit-to-GDP Data; Credit-to-GDP gap – Authors' Estimates

The credit-to-GDP ratio can be seen in three phases during the study period. The first phase is the period between 2000 and 2007 when the ratio was steady in the 21 per cent – 23 per cent range. During the time, the credit gap was oscillating between the positive and negative territory and within the (±) 0.5 per cent territory. With the negative gap signifying that there is scope to build up credit towards its long-run trend and a positive indicating excessive credit build up, phase one signals limited risk from an excessive build-up of credit. The second phase, the period between 2007 and 2015 when there was a steady growth in credit-to-GDP from 21.3 per cent to 31.8 per cent. In this phase, there was a transition from slack in credit uptake to a build-up that lasted from 2011 to 2015, over which period the credit-to-GDP gap was positive. The credit up was accompanied by an increase in the levels of non-performing loans (NPLs). According to data from CBK, for the period that the credit-to-GDP gap was positive (i.e. 2011-2015), gross NPLs as a ration of gross loans increased from 4.4 per cent in 2011 to 6.8 per cent in 2015.

The third phase is the period after 2015 when the credit-to-GDP took a declining trend and the credit-to-GDP gap quickly swung to the negative and unprecedented levels of -2.1 per cent. The levels of gross NPLs as a proportion of gross loans continued to increase, hitting 10.6 per cent by the end of 2017. The further unmasking of the credit market imbalances entails a look at the interaction between the business cycles and financial cycles. As already observed, financial cycles are characteristically postulated have high amplitude and long duration compared to that of the business cycles. **Figure 3** depicts such cycles.

Figure 3: Financial and Economic Cycles in Kenya



Source: Nairobi Securities Exchange; Kenya National Bureau of Statistics (KNBS); CBK.

It can be argued that the high amplitude and duration of the credit market cycles compared to the real GDP growth cycles are meant to guide on bank regulation from either excessive credit build up or too much slack that may necessitate policy stimulus. While credit has a positive association with GDP growth, its measure to address its trend or gap in the context of imbalances is hardly to be seeking to manage business cycles (Drehmann and Tsatsaronis, 2014). The capital markets cycles are underpinned by investor sentiments and perceptions; sometimes they have the predictive capability of the likely direction of the GDP growth cycle. There is an inherent relationship between the behaviour of the yield curve and that of the equities market. The relationship is either positive or negative depending on a given central bank's monetary stance (Lieven and Van Holle, 2017); during a tight monetary policy regime, the correlation is positive and during an accommodative monetary policy regime on the back of low inflation, the correlation is negative.

The association between the bond market and the equities market is of this paper's interest. That is because if it is positive and the yield curve is flattening, often taken as a signal of the beginning of economic slowdown, it could mean that a bear market associated with falling equity prices could signal investor expectations of an economic slowdown. To be sure, a distinction must be made between a "bear flattening" where all rates are rising but short-term rates are rising faster than long term rates and a "bull flattening" where rates are falling but long-term rates are falling faster than short term rates. To the extent that yields influence prices (interest rates) and in instances the quantity if they are associated with the crowding out of private sector credit, they have an association with how the overall economy performs. Thus, the interaction between business cycles and financial cycles are important in understanding the credit market imbalances.

3.0 Data and Methodology

In this section we present the data sources and the empirical identification strategy adopted to examine the effect of credit-to-GDP gap on asset quality and credit supply. our proxy for asset quality is the non-performing loans while credit supply is measured by the claims to the private sector by the financial institutions.

3.1 Data

In this section, we describe the data used for our empirical analysis. The data set contains annual observations for from 2000Q1 to 2017Q4. We collect data on credit supply as the sum of claims on the private sector by financial institutions from the Central Bank of Kenya Financial statistics database. In addition, Credit-to-GDP and Credit-to-GDP gap measured as the ratio between credit supply and nominal GDP at constant market prices and deviations of the credit-to-GDP from its long-run trend and is obtained using the Hodrick-Prescott (HP) filter we derived based on annual data and interpolated to obtain quarterly observations. Further, the 91-Day Tbills defined as the yield on the 91-day treasury bills and interpolated to obtain quarterly observations were obtained from the Central Bank of Kenya Financial statistics database.

We also collect information on asset quality measured as the ratio of non-performing loans to gross loans on an annual basis but use linear interpolation to obtain quarterly observations. Asset prices measured by the NSE-20 share index is obtained from the Nairobi Securities Exchange. Real GDP growth data was collected from the Kenya National Bureau of Statistics (KNBS) database while the risk premium, computed as the difference between average lending rates and the 91-day treasury bill rate was obtained from the Central Bank of Kenya Financial statistics database. Two dummy variables were also used, one to capture the Global financial crisis of 2008 and the other to capture the interest rate capping regime that was introduced in September 2016.

Figure 4 illustrates the association between asset quality and other financial and macroeconomic indicators. The evidence presented reveal an existence of a strong association between contemporaneous credit to the private sector and asset quality a clear indicator of the procyclicality of asset quality and a further hint to the path dependence of quality of credit such that when the market is calm, and defaults are low, credit will continue to grow, and vice versa. This could be the case when there is fast credit buildup at a time when the economy is on a growth trajectory, there is a positive association between real growth and NPLs. Secondly, equities and asset quality comove albeit in the negative direction suggesting that an uptick in the equity market is associated with strengthening in asset quality, an indication of a positive outlook for firms and household's improved financial health and thus the reduction in the probability of defaulting on their credit obligations.

Figure 4: Asset Quality and financial and macroeconomic indicator dynamics

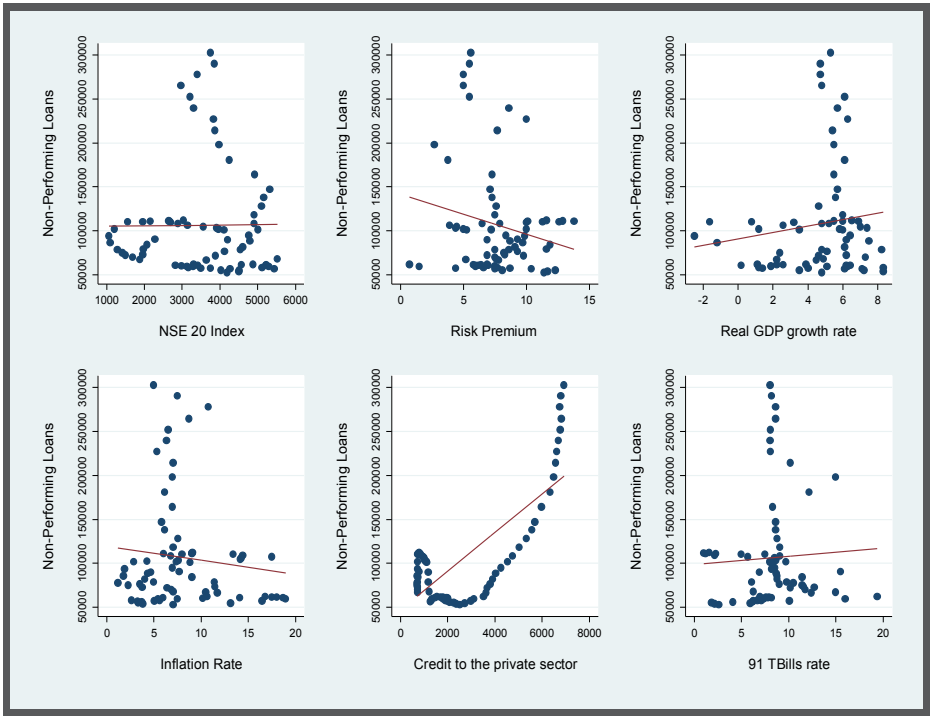


Figure 5 also illustrates the dynamics between credit supply and financial and macroeconomic indicators. The upper left panel reveals the existence of a positive association between credit supply and asset prices as measured by the stock market index but is negatively correlated with inflation rates and risk premium. In addition, we also establish credit supply to be positively correlated with real GDP growth, an indication that during periods of strong economic growth credit supply is higher. Similarly, credit supply is positively correlated with asset quality and 91-day treasury bills rates.

Figure 5: Credit supply and financial and macroeconomic variables dynamics

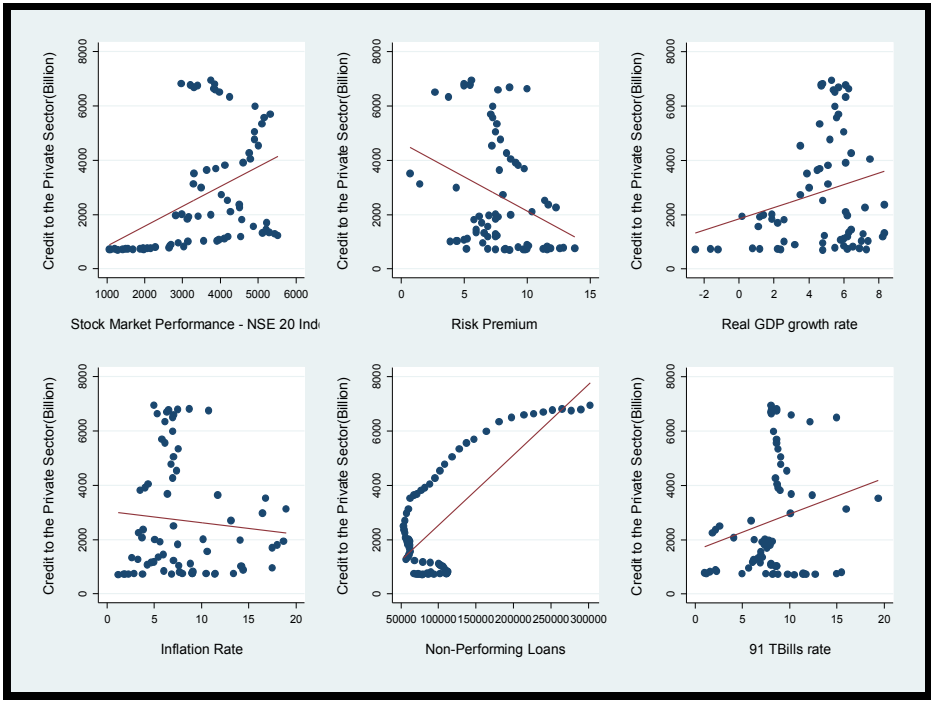


Table 1 presents mean and standard deviation, minimum and maximum of credit supply, asset quality, asset prices, inflation rate, real GDP Growth, risk premium, lending rates, Credit-to-GDP, credit-to-GDP gap and 91-day treasury bill rates.

Table 1: Summary Statistics

Variable	Mean	Std. Dev.	Min	Max
Credit to the private sector (Credit supply) '000	2,706.18	2,143.29	704.00	6,935.00
Asset Quality (NPLs) '000	106.533	62.377	52.958	302.299
Stock Market Performance (NSE -20 Index)	3,558.00	1,231.90	1,061.50	5,525.07
Inflation Rate	8.15	4.45	1.22	19.00
Real GDP growth	4.64	2.39	-2.50	8.30
Risk premium	7.72	2.64	0.70	13.80
Lending Rates	15.96	2.80	12.2	24.8
Credit-to-GDP gap	-0.09	0.57	-2.10	0.80
Credit-to-GDP	25.40	3.68	21.30	32.00
91-Day Tbills	8.24	3.45	1.00	19.40

3.2 Empirical methodology

In this section, we first lay down the framework adopted in exploring the connection between credit market fundamentals and sentiments in the Kenyan context. In modelling the credit supply and asset quality functions we consider the fact that the effect of the conditioning variables is not instantaneous but instead follow an autoregressive process which for parsimony of the model is of order one and serves to take into account the plausible delay with which macroeconomic shocks would affect the credit portfolio. The general econometric specification considered therefore is of the functional form given by;

$$Credit_t = Credit_{t-1} + NPLs_{t-1} + Credit\text{-}to\text{-}GDP\ gap_{t-1} + rGDP_{t-1} + NSE_{t-1} + Risk\ premium_{t-1} + Inflation_{t-1} + Lending\ rate_t + Crisis_t + Capping_t + \varepsilon_t \quad \textbf{...Equation (1)}$$

$$NPLs_t = NPLs_{t-1} + Credit_{t-1} + Credit\text{-}to\text{-}GDP\ gap_{t-1} + rGDP_{t-1} + NSE_{t-1} + Risk\ premium_{t-1} + Inflation_{t-1} + Lending\ rate_t + Crisis_t + Capping_t + \varepsilon_t \quad \textbf{...Equation (2)}$$

Equation (1) examines the credit supply dynamics while **Equation (2)** analyses the covariates of asset quality dynamics and where $\varepsilon \sim N(0,\delta^2)$, is the stochastic error term which is assumed to be Independent and identically distributed. $Credit_t$ denotes the credit supply in period t while $Credit_{t-1}$ captures the contemporaneous credit supply. $NPLs_t$ denotes the levels of $NPLs$ in period t, is the lagged $NPLs$. $rGDP_{t-1}$ is the lagged real GDP growth, $risk\_premium_{t-1}$ is the risk premium at period t and is computed as the difference between the average lending rates and the risk free 91-day treasury bills rate, $Inflation_{t-1}$ is the lagged inflation rate and ε_t.

In **equation (1)** credit supply is conditioned on a set of financial and macroeconomic variables and of interest is the credit-to-GDP gap. **Equation (2)** on the other hand conditions asset quality on a set of selected macroeconomic and financial indicators. Estimation of both **equations (1)** and **(2)** is based on quarterly time series data for Kenya spanning the period 2000 to 2017. Estimation of the equations is by the Zellner's (1962) seemingly unrelated estimation technique which comprises several individual relationships (i.e. in our case there are two equations, one relating credit supply and the other relating to asset quality) that are linked by the fact that their disturbances are correlated with the correlation among the equation disturbances coming from sources such as correlated shock. The choice of the seeming unrelated estimation approach is motivated the need to gain efficiency in estimation of the beta coefficients by combining information on different equations and is more efficient than OLS estimation technique as it can account for interrelations between the disturbances of the two simultaneous equations.

3.3 Results and Discussions

Econometric analysis of **equation (1)** and **(2)** estimated using the Seemingly Unrelated estimation (SUR) technique suggests that credit imbalances as measured by Credit-to-GDP gap is a significant factor in explaining the credit supply and asset quality dynamics (**Table 2**). The estimation results presented in **Table 2** present the coefficients and their associated standard errors for each individual block of indicators.

3.3.1 Credit Supply dynamics

The econometric estimates of equation (1) and presented in column (1) in **Table 2** reveals that credit market imbalances – measured by credit-to-GDP gap- has a significantly positive effect on credit supply in line with Kelly, McQuinn and Stuart (2013), which seems to suggest that rapid increases in credit are related to a "catch-up" process as the economy endeavours to be more financially sophisticated,

and thus such increases are appropriate and indeed necessary for the development of the economy. Secondly, the analysis reveals that movements in asset prices influence credit supply as we find a positive and significant effect consistent with the view that asset prices influence credit supply as documented by Frommel and Schmidt (2006) for the euro countries, and Adrian and Shin (2010) for US Banks. From a demand-side perspective of credit, increasing asset prices (a buoyant stock market outlook) is deemed to increase the net worth of borrowers. From a supply-side perspective, and especially with respect to banks that have exposure to the stock market, an increase in asset prices shores up the value of equity, therefore, enabling them to expand their asset side of the balance by extending more credit.

Further, the results show that credit supply responds to shocks in real GDP growth with a lag as a rise in contemporaneous real GDP growth is inversely related to credit supply, contrary to theoretical expectations where a higher contemporaneous real GDP growth would be associated with higher credit supply (Guo and Stepanyan, 2011; Tan, 2012). Equally, the effect of real GDP growth with respect to credit supply is also negative negating the widely acclaimed view that it is positively related to credit supply at least for the period covered by the study. On the other hand, we also establish that a contemporaneous deterioration in asset quality is associated with a reduction in credit supply an indication that a decline in a banks' portfolio quality has an adverse bearing on the credit standards in subsequent periods to the extent that it may trigger episodes of tightening to lower their credit risk exposure. Similarly, the history of credit supply (i.e. first lag of credit supply) is a positive predictor of credit supply in line with the view of Salas and Saurina (2002), Craig et al. (2006), and Quagliariello (2007) who also find a positive association.

On inflation, we find that it is inversely related to credit supply. On the contrary, the risk premium is found to have an unexpected positive sign on credit supply though insignificant. This either indicates that the change in the risk premium is endogenous, and it can only be posited that a period where an increase in the risk premium encouraged banks to increase their credit supply thus supporting this positive outlook. With respect to the crisis dummy, the empirical results suggest that it is inversely related with credit allocation, albeit insignificant. This suggests that post the 2008 global financial crisis credit supply has been on the rise compared with the pre-crisis period though the rise post-crisis is not statistically significant. Finally, the analysis reveals that during the post-interest rate capping, credit supply to the private sector has increased in absolute terms compared to the pre-interest rate capping but with a declining rate of growth. While this observation is aligned with the huge negative credit-to-GDP gap earlier observed, the results need to be deemed interim given that the period post-capping is short, and the data points are quarterly.

3.3.2 Asset Quality dynamics

The econometric estimates of equation (2) and presented in column (2) of **Table 2** reveal that credit market imbalances enter the asset quality function with a positive and significant sign, a revelation that contemporaneous credit market imbalances build-up lead to a deterioration in asset quality. Second, the results reveal that contemporaneous changes in asset quality and credit supply have a significant positive effect on asset quality. In addition, we establish that current and contemporaneous growth in real GDP enters the asset quality equation with a negative sign though the relationship is insignificant, an indication that a rise in economic growth is associated with a reduction in non-performing loans, simply a rise in a bank's portfolio quality. Strikingly, the non-significance of the coefficients on contemporaneous and current real GDP growth suggest that credit demand factors may not have played a big role in influencing credit supply in the period under review.

In addition, the negative lag effect of real GDP growth on asset quality suggests that there is a delayed effect in the transmission of the shocks on asset quality. Bearing in mind the possible bi-directional relationship (i.e. reverse causality) between NPLs to gross loan's growth and real GDP, we also conducted a Granger causality test and the results affirm that based on the sample of data, the direction of the relationship runs from real GDP to NPLs to gross loan growth[1]. Similarly, as expected, a rise in lagged asset prices leads to a decline in asset quality with the effect being significant. This is in line with the literature (see for instance Nkusu, 2011) which finds that a surge in asset prices drives the asset quality. One of the channels through a surge in asset prices affects asset quality is premised on the fact that a buoyant stock market outlook pushes the net worth of borrowers through the wealth effect and therefore helps in facilitating the debt servicing. In the case of risk premium and inflation, we establish that both are significant and inversely related to asset quality (i.e. NPLs to gross loans growth). Inflation rates and risk-premium enter the regression equation of asset quality with the negative effect as expected; the high risk premium (i.e. the higher the lending rate relative to the risk-free rate) affects the ability of the borrowers to service their debt and as a result this leads to a deterioration in asset quality (Louzis, Vouldis and Metaxas, 2010).

The impact of inflation on asset quality is often ambiguous. On the one hand, a higher inflation rate can make the servicing of existing debt obligations easier by reducing the real value of outstanding loans but could also reduce the borrower's income especially in an environment where wages are

1 The regression model with real GDP growth as the dependent variable yielded a F with a thus suggesting that NPLs to gross loans growth does not Granger-causes real GDP growth but real GDP growth Granger-causes NPLs to gross loans growth as the regression variable with NPLs to gross loans growth as the dependent variable yield a F with a .

sticky. Our finding of an inverse relationship between inflation and asset quality suits the latter hypothesis that inflation reduces borrower's income and therefore their inability to meet their credit obligations, leading to a deterioration in asset quality. With respect to the crisis dummy, the empirical results suggest that it is inversely related to asset quality and the relationship is significant at the 10 per cent level. On the interest rate capping regime, we find evidence that post-interest rate capping asset quality is accentuated relative to the pre-capping period as the coefficient turns out to be positive.

Table 2: Effect of Credit Imbalances on Credit Supply and Asset Quality

	Model (1)		Model (2)	
	Dependent variable: Credit Supply		Dependent variable: Asset Quality	
Constant	0.00240	(0.321)	0.251	(0.452)
Credit supply (-1)	1.004***	(0.032)	0.0959**	(0.043)
Asset quality (-1)	-0.0186	(0.024)	0.972***	(0.030)
Credit-to-GDP gap	0.0535***	(0.017)	0.0563***	(0.021)
Asset Prices (-1)	0.0361	(0.030)	-0.0741	(0.045)
Inflation Rate (-1)	-0.00152	(0.002)	-0.00132	(0.002)
Risk-Premium (-1)	0.00371	(0.003)	-0.00176	(0.003)
Real GDP Growth (-1)	-0.00174	(0.003)	-0.00157	(0.004)
Real GDP Growth	-0.000903	(0.003)	-0.00443	(0.004)
Crisis dummy (=1 if post GFC crisis, 0 otherwise)	-0.00468	(0.003)	0.00353	(0.005)
Interest capping (=1 if post-capping, 0 otherwise)	-0.0167	(0.035)	-0.0618	(0.045)
Lending Rate (-1)	0.0766*	(0.044)	0.0582	(0.054)

Standard errors in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.0 Key Findings and Inferences

The foregoing empirical results suggest that the credit market imbalances in Kenya are underpinned by the interaction between the business cycles and the financial cycles. Both credit supply and credit quality appear to be substantially influenced by the credit-to-GDP gap. At the same time, the lagged variables of the dependent variables are core to their respective outlook, at least over the next business cycle and could extend to the financial cycle.

The key inference from these findings points to the attribute of the credit market outcomes in Kenya being extrapolative. In essence, both credit supply and credit quality are path dependent such that when the market is calm, and defaults are low, credit will continue to grow, and vice versa.

The adjustment process that is revealed by the credit-to-GDP gap is an indication of the need for careful consideration of the policy options first to ensure that there is market stability before any endeavour to promote the management of the business cycles is considered. Specifically, it is a pointer to the need for the regulatory authority to initiate the development of a framework towards countercyclical capital buffers. The framework will be complementary to the CBK's existing capital adequacy requirements. The CBK prudential guidelines have been dynamic, with periodic reviews in line with international developments. The prudential guidelines relating to minimum capital are: core capital of not less than eight per cent of total risk-weighted assets plus risk-weighted off-balance sheet items; core capital of not less than eight per cent of its total deposit liabilities; total capital of not less than twelve per cent of its total risk-weighted assets plus risk-weighted off-balance sheet items.

Banks are required to maintain a capital adequacy ratio of at least 12% of which 8% is core capital, being a ratio where eligible capital is the

numerator and the denominator is assets adjusted for various risks (credit risk, market risk and operational risk). In addition to the above minimum capital adequacy ratios of 8% and 12%, banks are required to hold a capital conservation buffer of 2.5% over and above these minimum ratios to enable the institutions to withstand future periods of stress. This therefore brings the minimum core capital to risk-weighted assets and total capital to risk-weighted assets requirements to 10.5% and 14.5%, respectively. The capital conservation buffer should be made up of high-quality capital which should comprise mainly of common equity, premium reserves and retained earnings. While the outlined capital adequacy requirements have served the stability of the banking system, the flexibilities of the countercyclical capital buffers – being lowered during a recession and increased during economic boons is one of the ways of ensuring that process rigidities are ameliorated when the credit gap is in the extreme, either on the negative or positive side.

5.0 Conclusion

The Kenyan credit market is characterised by imperfections that manifest themselves in imbalances in the form of credit gaps where supply deviates from its long-run trend. This paper extends the analysis of the credit market adjustment process beyond the conventional price mechanism, recognising that process rigidities hinder the market from adjusting in a manner that closes the credit gap.

We make inferences on the implication of the adjustment process that entails an interaction between the business and financial cycles, and between fundamentals and sentiments, on regulatory policy. Specifically, we make inferences on how expectations of capital requirements for banks under the Basel regimes, especially Basel III and its Countercyclical Capital Buffers (CCB) will help in ameliorating the persistence of market imbalances as could be implied by the credit gap.

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