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# Macroeconomic Factors and Asset Pricing from the Financial Institutions Concept in Kenya

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## Abstract

This study aimed to unleash the role of macroeconomic factors on asset pricing among financial institutions. The study acknowledges that whilst the portfolio diversification's conceptualization is critical to achievement of investment goals and risk management, a diversified portfolio across asset classes has no guaranteed diversified risk exposures. The study adopted a descriptive design to provide a plan of study that permits accurate assessment of cause and effect relationships between independent and dependent variables. The target population encompassed all the available literature on the online web as pertaining macroeconomic factors and asset prices of financial institutions. Using key word characters, the search initially identified 58 references and after a tentative scrutiny, 30 references were selected in a random sampling manner in order to give the birth of this discussion paper. This study relied wholly on secondary data and thus a survey of documented data was applied in acquisition of prerequisite information, literature and background of this research topic through desktop research. From the empirical review it was established that big movements in stock prices of financial institutions do not line up with movements in long-term interest rates over the same period. The study also acknowledges that macroeconomic factors affect asset prices and that asset prices have significant influence on foreign exchange rates exposure on financial institutions.

*Keywords: asset prices, macroeconomic factors, financial institutions*

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## 1 Introduction

Macroeconomic factors over the years have remained a center stage for corporate finance studies due to their great influence on financial decisions and their influence over the welfare of the economy. According to Mankiw (2010), macroeconomic factors serve as the basis for judging the economic performance of an economy.

While these factors (macroeconomic factors) tend to carry a systematic risk element, policy makers at both the micro and macro levels tend to hope that these factors will tend to remain constant so as to facilitate business growth (World Bank, 2014). If systemic risk remains constant, then financial institutions will only be concentrating on idiosyncratic factors and which are firm specific.

Romer (2012) defines macroeconomic factors to refer to economic wide behavioral trends that require attention as they have a bearing on overall performance of any firm. Lynn (2007) recognizes that macroeconomic factors cause a ripple effect across the whole economy due to their interconnectedness.

Cheruiyot (2015) argues that some of the macroeconomic factors that influence asset prices of financial institutions entail interest rates, inflation rates, exchange rates, GDP, unemployment among others. Whilst an understanding of these factors is critical to streamlining the future directions of financial institutions, measuring the effect of these macroeconomic factors has remained a difficult endeavor (Omare, 2015).

The conceptualization of portfolio diversification is of great importance for investors in achieving investment goals while managing risks. However, a diversified portfolio across asset classes does not guarantee diversified risk exposures. Macroeconomic factors, such as inflation rates, exchange rates, unemployment and interest rates have been found to impact on financial markets (Romer, 2012).

A report from Hass Consult Property Index (2016) posits that in 2015, house prices increased marginally due to a fall in marked prices for high-end market detached houses. It has been established that the average asset prices (housing prices) rose by 1.14% with inflation increasing by 6.6% in 2016 while interest rates declined by 4.8% from 11.24% in 2015 and at the same time inflation hiking to 7.0% in 2017 (HPI, 2016).

Engel and West (2005) reveals that the existing exchange rate models can be written in a present-value asset-pricing format in which case the exchange rates are determined not only by current fundamentals but also by expectations of what the fundamentals will be in the future. Current fundamentals receive very little weight in determining the exchange rate.

Government of Kenya (2013) postulates that the macroeconomic factors' variations exhibit a diverse effect across the economic spectrum, although the recent innovations in macroeconomic fundamentals are lacking in emerging markets like Kenya. According to the Economic Survey (2013), performance of the stock market improved during the year 2012. The NSE 20 Share Index rose by 29.0 per cent to 4,133 from 3,205 in December 2011. During the same period, annual inflation decreased from 14.0 per cent in 2011 to 9.4 percent in 2012. The year 2011/2012 was characterized by bullish foreign investor participation in the equity market averaging 45% of the total turnover due to currency depreciation. However, during the second quarter of 2012, the market experienced a rebound of sorts largely due to easing of inflationary and exchange rate pressures (Capital Markets Authority, 2012).

According to the International Monetary Fund (2020), the global economy contracted by 3.2 percent in 2020, from growth of 2.8 percent in 2019 on the backdrop of COVID-19 pandemics. The situation in Kenya was not different with the GDP falling from 100.46 billion dollars in 2019 to 98.84 billion dollars in 2020 (Kenya Economic Survey, 2021). The need for liquid assets to meet firms' and households' needs and emergencies in year 2020 led to 0.7 percent and 18.5 percent decline in Notes and Coins and Balances held at CBK, respectively, implying COVID-19 shock exacerbated flight to safety tendencies (Kenya Financial Sector Stability Report, 2020).

The asset market in Kenya has been changing rapidly in the previous fifteen years. This period has been marked with growth in housing, land and stock markets. According to Hass Consult Property Index (2017), the average cost of a residential house rose from Ksh. 7.1 million in December 2000 to Ksh. 29.8 million in September 2017. As the middle class grows, more people are looking for ways to invest their disposable income after consumption.

The Hass Consult Property Index (2016) notes that due to the capping of interest rates, the housing prices in Nairobi suburbs increased by 0.1 percent in the fourth quarter and had an annual return of 7.6 percent. In addition, the satellite towns recorded an 8.6 percent rise in prices and a 4 percent rise in rental prices (Hass Consult Property Index, 2016). These statistics translates to massive movement of majority of Kenya's population to marginalized locations such as slums and rural areas in search for cheaper housing.

Amadi, Oneyema and Odubo (2000) revealed that the relationship between macroeconomic factors and asset prices is consistent with theoretical postulation and empirical findings in some countries. However, vast studies in the emerging markets show an inconclusive relationship between macroeconomic variables and asset pricing.

While macroeconomic factors influence the overall dimension of an economy (Omare, 2015; Cheruiyot, 2015), it remains grey on whether macroeconomic factors have a bearing on asset pricing. This discussion paper aims to unveil this controversy by examining the independent variables of interest rates, exchange rates, unemployment and inflation. An under-

standing to this will provoke policy implications to safeguard the consumers from the rapidly rising cost of life due to diminishing purchasing power of the Kenyan shilling against the US dollar.

## 2. LITERATURE REVIEW

Most of the empirical evidence suggests that micro economic factors is closely linked to the economic activity on asset pricing. In other words, macroeconomic factors such as; downturns / slowdowns in the economy, recessions, low rate of savings, weak markets, depressions in industrial production, reduction in per capita income levels and most importantly the inflation levels, exchange rates, unemployment and interest rates in the economy. Dermiguc-Kunt and Detragiache (2000) employed a Multivariate Logit Framework to develop an early warning system for banking crisis on asset pricing and a ratings system for financial institutions fragility in Kenya.

Kumar and Kishore (2019) carried out a study to determine macro-economic factors and banks-specific indicators that influence asset prices in United Arab commercial banks. The objectives of the study were to find out the effects of unemployment rate, gross domestic product, bank liquidity, capital adequacy and return on assets on asset prices. The researcher used descriptive analysis and Pearson moment correlation analysis also panel data analysis method was used and selected fixed effects model to analyze data. From the findings, macro-economic variables namely unemployment rate, gross domestic products, inflation have insignificant effects on non-performing loans. Bank liquidity was found to have positive significant relationship with non-performing loans but capital adequacy and return on asset have negative significant relationship with level of non-performing loans

Gambo (2017) investigated factors influencing asset prices in deposit money banks in Nigeria. The objectives of the study were to find out the effects of Inflation, gross domestic product, Liquidity, capital adequacy and bank size on asset prices. The author adopted multiple linear regression analysis to analyse secondary data collected. From the finding, capital adequacy, return on assets and gross domestic product has a negative significant relationship with asset prices while inflations, liquidity and bank size reported positive significant relationship with asset prices in the stock market.

Argaw (2016) accomplished a study on bank-specific characteristics that influenced asset pricing in Ethiopian Banking Industry. The Purposes of the research was to evaluate effects of banks liquidity, capital adequacy and returns on equity on asset pricing amongst commercial banks in Ethiopia. The researcher adopted panel data analysis to analyse the secondary data collected and adopted random effect model. From the finding, capital adequacy and return on equity was found to have insignificant relationship with asset prices but bank liquidity has a significant relationship with asset prices.

Shiller (2007) studied on low Interest rates and high asset prices, an gave an Interpretation in Terms of Changing Popular Economic Models There has been a widespread perception in the past few years that long-term asset prices are generally high because monetary authorities have effectively kept long-term interest rates, which the market uses to discount cash flows, low. Shiller (2007) noted that this perception was not accurate. Long-term interest rates have not been especially low. What has changed to produce high asset prices appears instead to be changes in popular economic models that people actually rely on when valuing assets. The public

has mostly forgotten the concept of “real interest rate.” Money illusion appears to be an important factor to consider.

Filardo (2000) carried out a research on the link between monetary policy and stock prices and housing prices. Monetary policy theory suggest that a negative shock to monetary policy that lowers interest rates increases asset prices. Brett (2015) noted that a lower interest rate decreases the cost of borrowing, raises investment levels (say for firms or homebuyers), and thus raises the asset price. Using a VAR methodology, the empirical evidence in this study, however, does not find this relationship between monetary policy shocks and MA activity. The response of MA activity – measured by average EBITDA multiple and the number of transactions – does not respond inversely to shocks in monetary policy.

In a model with only short-term debt, Kouri (1976) used market clearing in the foreign short-term debt market for exchange rate determination, assuming that the foreign short-term rate was fixed. Kouri and De Macedo (1978) resolved the problem of five asset prices in four market clearing equations by introducing a fifth equation for relative cash demand with the exchange rate as the relative price. Hau and Rey (2006) uses market clearing in equity markets to jointly determine equity prices and the exchange rate. They introduced a third equation for the spot exchange rate, which depends on the imbalance between domestic demand for foreign equity and vice versa.

Fratzcher, Juvenal and Lucio Sarno (2007), in their paper analysed the role of asset prices in comparison to other factors, in particular exchange rates, as a driver of the US trade balance. It employed a Bayesian structural VAR model that requires imposing only a minimum of economically meaningful sign restrictions. The study found that equity market shocks and housing price shocks have been major determinants of the US current account in the past, accounting for up to 32% of the movements of the US trade balance at a horizon of 20 quarters. By contrast, shocks to the real exchange rate have been much less relevant, explaining less than 7% and exerting a temporary effect on the US trade balance. The study suggested that sizeable exchange rate movements may not necessarily be a key element of an adjustment of today’s large current account imbalances, and that in particular relative global asset price changes could be a more potent source of adjustment.

Koijen and Yogo (2019) estimated demand elasticities for the cross-section of US and UK equity. These papers use institutional and household holdings within a country, while we use aggregate holdings at the country level. An advantage of our approach is that we estimate demand elasticities for all countries and asset classes, based on a demand system that allows for all substitution effects. The previous papers implicitly rule out substitution effects outside the countries and asset classes that their data cover.

Motivated by the arbitrage pricing theory or the intertemporal capital asset pricing model, an empirical literature tests for a low-dimensional factor structure in global stock (Fama & French 2012), bond (Dahlquist and Haseltoft 2013; Jotikasthira, Le, & Lundblad 2015), and currency returns (Lustig, Roussanov, & Verdelhan 2011). These papers find both common and local factors across countries within each asset class. Asness, Moskowitz, and Pedersen (2013) find common factors in value and momentum returns across countries and asset classes. Like this literature, we develop an asset pricing model that covers the three asset classes across all developed and many emerging markets. An important difference is that our

model matches international holdings together with asset prices. The literature on factor models uses data on asset prices and factors only, ignoring the portfolio choice implications of international holdings data. The demand system approach sheds light on the sources of common factors in global stock, bond, and currency markets.

Takatoshi et.al. (2013) investigated the effect of exchange rate risk management on the exchange rate exposure of Japanese firms. They noted that firms with larger dependency on foreign markets have larger foreign exchange exposure and that the higher the U.S. dollar invoicing share, the larger the foreign exchange exposure. In addition, they found out that local currency (Yen) invoicing itself reduces the foreign exchange exposure. Their findings indicated that Japanese firms utilized operational and financial hedging strategies and price revision policy depending on their choice of invoicing currency.

El-Masry (2006) studied the foreign exchange rate exposure of UK non-financial companies (364) at the industry level over the period 1981-2001. The study considered the impact of the changes (actual and unexpected) in exchange rates on firms or industries’ stock returns employing OLS model. The findings indicated that a higher percentage of UK industries were exposed to contemporaneous exchange rate changes than those reported in previous studies. The study provides important insight thought it would important to determine whether similar results would be found in case of developing financial markets like Kenya.

Lee and Suh (2012) used a sample of 261 US multinationals over the period 1984– 2002 to examine the relation between exchange rate changes and the profitability of foreign operations. The study found that the impact of exchange rate changes on foreign operations’ profitability is not statistically significant in the majority of industries. Furthermore, exchange rate changes explained less than 2% of the variation in foreign operations’ profitability for most industries. The study also found that the impact of exchange rate changes on foreign operations’ profitability is generally weak for non-US multinationals from Australia, Canada, Japan and the UK. The study used trade-weighted exchange rates as opposed to the contemporaneous exchange rate changes. A replication of the study using contemporaneous exchange rate changes would reveal the dynamic relations between exchange rates and firm performance.

### 3. METHODOLOGY

This part describes the methodology that was adapted in addressing the study objectives. It includes the data collection techniques, research design, sample and sampling procedure, instrumentation, data analysis and techniques.

The study adopted descriptive research design with an objective of describing the effect of macroeconomic factors on asset pricing in the Kenya’s financial institutions with a focus on interest rates, exchange rates, unemployment and inflation (Leedy & Ormrod, 2005).

The population of this research comprised all the available literature on the online web as pertaining macroeconomic factors and asset prices of financial institutions. Using key word characters, the search initially identified 58 references and after a tentative scrutiny, 30 references were selected in a random sampling manner in order to give the birth of this discussion paper.

This study relied wholly on secondary data and thus a survey of documented data was applied in acquisition of prerequisite information, literature and background of this research topic through desktop research. Secondary data was most preferred than primary data in this research because of its minimized bias, easy of reference, greater speed of knowledge retrieval and within the favorable time limits (Berger, 2015).

Empirical results were presented in line with the empirical literature under review and as per the study variables: interest rates, exchange rates, unemployment and inflation. The conclusions of the study are drawn from the empirical results and recommendations made out of the findings.

#### 4. CONCLUSIONS AND RECOMMENDATIONS

The conclusions of the study were also based on the specific objectives and their respective hypotheses and mainly from the literature review carried out.

##### 4.1 Conclusions

The study concludes that asset prices are affected by macroeconomic factors. The significance of substitution effects across asset classes highlights the need to study exchange rates, long-term yields, and stock prices jointly. Central banks play an important role in managing exchange rates and the term structure of interest rates globally and this affects or influences asset prices significantly.

The analyses of the study deduced that the unexpected changes on foreign exchange rates have significant negative influences on asset prices of financial institutions; further conclusions are that the asset prices have significant influence on foreign exchange rates exposure on financial institutions.

##### 4.2 Recommendations

Financial institutions should always consider hedging especially multinationals. Secondly, management of financial institutions should consider exchange rate exposure mitigation measures when making decisions involving asset prices. The market timing hypothesis should be considered always such that financial institutions to hold back the issuance of financial instruments during volatile exchange rate. Investors in equity shares and other financial instruments of financial institutions need to always consider the inflation and interest rates since they have a high influence on the return of their investments or borrowing cost.

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