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Contents

Articles

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Contact us through:
Comms@centralbank.go.ke
www.centralbank.go.ke.

Drivers of Inflation In Kenya

1.0 Introduction

The principal mandate of the Central Bank of Kenya (CBK) is to formulate monetary policy to fight inflation in accordance with Article 4 (1) of the CBK ACT. Thus, the Bank has a legal mandate to ensure low and stable inflation rates consistent with the country's economic growth targets. Low and stable inflation facilitates economic growth and helps uplift the living standards and economic welfare of all the people, especially the poor. This is why the subject of inflation is very critical in policy making and overall development process. Currently the Bank has an inflation target of five (5) percent with a band of two (2) percentage points above or below the target rate.

While inflation may be broadly defined as the overall increase in prices or the increase in the cost of living in a country, it can also be narrowly calculated for a particular good or service- such as food inflation, transport inflation etc. Whatever the context, inflation represents how much more expensive the goods and/or services have become, over a certain period of time, usually, one year. Inflation may be caused by a combination of internal and external factors, which may reflect supply constraints or demand pressures or a combination of both. Internal factors include supply constraints, commonly referred to as cost-push inflation, which reflect factors affecting the supply of goods and services in an economy or excessive demand pushing their prices up and vice versa. External causes of inflation are mainly outside the control of the domestic economy. They emanate from outside the country and include such factors as international crude oil prices which raise the cost of fuel and power, and which pass through to translate to higher costs of transport, production, etc. or imported inflation – mainly referring to imports from countries experiencing high inflation.

That high inflation is bad for growth is not in doubt. What has not been established (at least for the Kenyan case) is whether there exists a growth-maximizing inflation rate– beyond which it is harmful to growth and below which it is growth-enhancing. However, while there is no specific rate of inflation that can be said to be appropriate for growth, moderate inflation (usually single digit) is good for the economy since deflation is also harmful to the economy as it depresses demand. A number of past studies have established that there exists an inverse relationship between inflation and growth. Using data for 100 countries from 1960 to 1990 to assess the effects of inflation on economic growth, Barro (1995), found that increasing inflation by 10 percentage points per year led to a reduction of real GDP per capita growth rate by 0.2 – 0.3 percentage points per year and a decrease in the ratio of investment to GDP by 0.4 – 0.6 percentage points. Similarly, Valdovinas (2003) also found that there existed an inverse relationship between economic growth and the level of inflation in the long run.

Previous studies on inflation in Kenya have not settled on one factor that can be said to contribute to inflation in the country. Rather, a variety of conclusions have been drawn. For example, a study by Killick (1984) finds that no single factor could be taken as the major cause of inflation in Kenya. In another study, Killick and Mwega (1989) concluded that "despite variations in model tests, all studies in Kenya are unanimous in finding monetary expansion among the most important variables explaining inflation." Similarly, Ndung'u (1994) obtained results that indicated that money supply drives inflation. Adam et al (1996) also obtained similar results. Another study by Ryan and Milne (1994) found that exchange rate movements and changes in oil prices were the most important factors determining inflation while the contribution from monetary variables was small. In addition, Durevall and Ndung'u (2001) studied the dynamics of inflation in Kenya during 1974 – 1996; a period characterized by external shocks and internal disequilibria. They found that inflation in Kenya was influenced by changes in maize-grain prices indicating a non-negligible role for agricultural supply constraints in the inflation process. They also found that the exchange rate, foreign prices and terms of trade determined inflation in the long run.

2.0 Supply-side Drivers of Inflation

Supply constraints often lead to inflation (cost-push inflation). This is occasioned by several factors affecting the supply of goods and services, pushing their prices up. Such factors include, among others, bad weather conditions affecting agricultural output, other unanticipated disruptive events such as the 2008 post-election chaos that affected production and distribution of goods in the country, high cost of production especially the cost of fertilizer that can also lower production and high cost of electricity leading to increased cost of production. Thus, cost-push inflation can be brought about by:

- Decline in aggregate supply due to increased prices of inputs, also known as supply shock inflation.

- Poor weather conditions that affect food supply.
- High international crude oil prices that lead to an upsurge in the domestic oil prices affecting the prices of petroleum products. This is an exogenous shock.
- An increase in electricity tariffs that often lead to increased electricity costs.
- Increased labour costs that lead to higher production costs.

Supply-side intervention entails addressing the supply constraints to stop commodity prices shooting up in response to shortages. While we have no control over weather conditions (except, perhaps through irrigation) food shortages may be ameliorated by increased imports. Crude oil price movements are exogenous to the economy. Exploration of alternative sources of energy can be a solution in this case.

3.0 Demand-side Drivers of Inflation.

Inflation may also be caused by increased aggregate demand for goods and services in the economy. This is referred to as demand-pull inflation. Factors that increase aggregate demand against a constant supply include access to credit especially to the salaried workers or increased money supply in the economy. Thus, demand-pull inflation can be brought about by:

- Increased aggregate demand due to increased private and government spending.
- Increased nominal money supply (such as through printing of more money).
- A windfall gain (such as the Coffee Boom of the 1970's) which bring about unexpected income into the hands of consumers.

Demand-pull inflation can be controlled through demand management by managing monetary expansion in the economy. This involves adoption of sound macroeconomic policies consistent with the economy's growth targets.

4.0 Sources of Overall CPI in Kenya

The mandate of calculating inflation numbers vests in the Kenya National Bureau of Statistics (KNBS). In October 2009 the Bureau revised the methodology of calculating inflation from the arithmetic to the geometric mean method. This was followed by a revision of the weights of the respective baskets in February 2010 to reflect changes in households' behavioral patterns due to changes in consumption patterns and introduction of new products. For example the Food and non-alcoholic beverages' price index now account for 36.04 percent of the total weight, down from 50.05 percent in the previous basket. The KNBS also increased the data collection centers and extended the regions covered into all provinces and expanded the CPI baskets from 216 commodities to 234. The survey now captures new items such as expenditure on internet services, airtime and boda boda (bicycle/motorcycle) services to reflect the changing consumption patterns of Kenyans. The classifications by commodity categories were also increased from ten to twelve categories to harmonize with the agreed classifications among the East African Community (EAC) partner states.

The following table shows the various broad commodity categories and the respective CPI weights associated with each group.

Table 1: The overall CPI and its components

Broad Commodity Group	New CPI Weight
Food and non-alcoholic Beverages	36.04%
Alcoholic Beverages, Tobacco & Narcotics	2.06%
Clothing & Footwear	7.43%
Housing, Water, Electricity, Gas And other Fuels	18.30%
Furnishings, Household Equipment And Routine Household Maintenance	6.16%
Health	3.13%
Transport	8.66%
Communication	3.82%
Recreation & Culture	2.25%
Education	3.14%
Restaurant & Hotels	4.48%
Miscellaneous Goods & Services	4.52%
Total	100.00%

Source: Kenya National Bureau of Statistics

We note from table 1 above that the major categories of goods and services that seem to drive inflation include the Food and non-alcoholic beverages, the Housing, Water, Electricity, Gas and Other fuels and Transport. These three constitute a total weight of sixty three (63) percent leaving the other nine (9) categories to share the remaining thirty-seven (37) percent of the total CPI weight. Significant price changes in one or more of the individual commodities in these categories inevitably lead to changes in inflation rates depending on the direction and magnitude of the price changes. An increase in the prices would lead to an increase in inflation rate and vice versa. Similarly, a significant decline in the price of any one of the broad categories of goods and services can offset any increases in other baskets so that the overall effect is a declining inflation rate. For example, the decline in inflation from 3.6 percent in July 2010 to 3.2 percent in August 2010 was mainly attributed to the decline in the communications index by 23.5 percent when the average cost of airtime per minute dropped by more than 50 percent among the major service providers. This was despite an increase of 1.9 percent in the food and non-alcoholic

drinks' index occasioned by price rises of milk, sugar, potatoes and wheat flour. In this case the increase in the food index was offset by the decline in the communications index to give an overall scenario of a decline in the overall inflation.

A comparison of the overall CPI vis-à-vis the CPI's of other categories of goods and services reveals the influence of the various baskets on the overall inflation as shown in Chart 1 and 2 below:

Chart 1: Overall inflation Vs Food and Communications inflation.

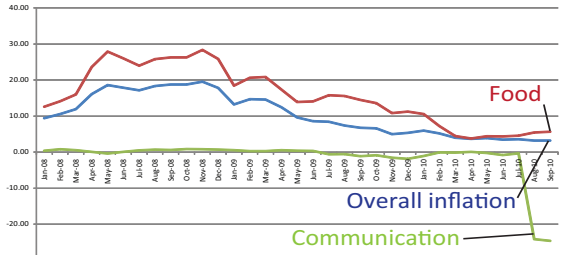
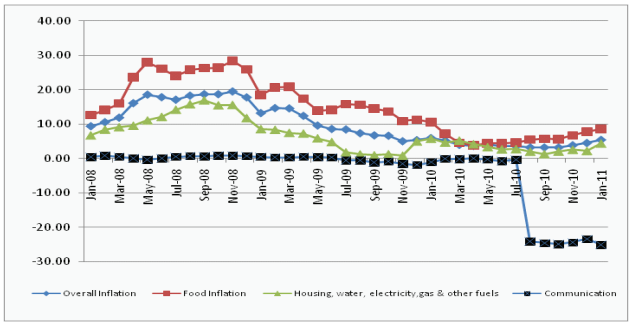


Chart 1 shows the influence of Food and non-alcoholic drinks and Communications baskets on the overall inflation. From January 2008 to around April 2010, food prices seem to be driving overall inflation such that any rise or decline in food inflation signals a rise or decline in the overall inflation. It can also be seen that although food prices are rising gradually from July 2010, the overall inflation is generally on a gradual decline owing to the sharp decline in the Communications basket.

In the months of September and October 2010, the picture was pretty much the same, with month-on-month inflation being explained mainly by significant declines in the Communications index which went down by 24.6 percent and 24.9 percent respectively. Other baskets that have produced notable price changes in the recent past include Alcoholic drinks, tobacco & narcotics; Transport; and Food and non-alcoholic drinks baskets which increased by 5.8 percent, 4.9 percent and 5.6 percent respectively in October 2010.

Chart 2: Overall inflation Vs. Other baskets' inflation



Source: Kenya National Bureau of Statistics

While the current overall inflation rate of 6.54 percent (for the month of February 2011) is not a threat to growth, it is a source of concern given that it has been on an upward trend since October 2010. That level of inflation was mainly driven by the Food and Non-alcoholic drinks' index which went up by 1.74 percent between the months of January and February 2011. Chart 2 shows the influence of other key baskets on the overall inflation. These include the prices of fuel, gas, electricity, water and housing as well as the telecommunications tariffs.

5.0 Consequences of High Inflation

High inflation is undesirable in an economy and is associated with the following adverse macroeconomic effects:

- Lowers the overall purchasing power of the currency in terms of units of goods and services that a unit of that currency can purchase.
- Erodes real incomes of fixed income earners such as pensioners.
- Discourages investments (both local and foreign).
- Reduces the value of savings.
- Discourages lending as lenders of money make losses in periods of high inflation. Thus financial institutions are hesitant to lend during periods of high inflation resulting in lower production and declining economic growth.
- Leads to speculation and expectations and can exacerbate an already worse situation (second round effects).
- Results in a wage -inflation spiral (agitation for increased salary by trade unions to cushion their members against the rising cost of living).

Extreme cases of hyperinflation like happened in Zimbabwe in 2008/2009 can render a currency useless. This happens when people lose faith in a currency as a medium of exchange. When an economy is facing hyperinflation, price changes are so frequent (daily, sometimes even hourly!) that a consumer cannot accurately predict the price of a good or service. The currency in question loses one of the key qualities of money, namely, acceptability.

6.0 Conclusion

We have seen that inflation can be brought about by factors that may be either internal or external to the economy or a combination of both. External causes of inflation in Kenya include rising crude oil prices which affect the cost of production and transport leading to increased commodity prices. There is also imported inflation- that emanates from our major trading partner(s) experiencing inflation. In both cases, domestic monetary authorities have no direct control of that type of inflation. Internal causes of inflation include increased aggregate demand in the economy as well as increased money

supply (as was the case in 1993 when Kenya experienced month-on-month inflation rates of over 100 percent).

Irrespective of the source of inflation, certain baskets are more likely to drive inflation than others depending on their relative weight in the overall CPI basket (see table 1) and the extent of price changes within the specific baskets. The main baskets that seem to drive inflation in Kenya include the Food and non-alcoholic drinks basket, the Housing, Water, Electricity and other fuels basket; and, lately, the Communications basket. For instance, price increases for the main staple food items such as maize grain, maize flour, kales, cabbages, tomatoes and milk in the food basket translates to higher inflation since this basket alone constitutes 36.04 per cent of the total consumer expenditure.

The other major contributor to the overall month-on-month inflation in Kenya has been fuel prices particularly kerosene and petrol. The lower income segment of the population has been particularly hard hit by increased cost of illuminating kerosene which they also use for cooking. Increased fuel prices translate to higher bus/matatu fares while in the Communications basket cell phone tariffs also contribute to inflation changes. High fuel costs have also permeated into high electricity prices in Kenya through the fuel adjustment component in electricity tariffs. This has had a direct effect on inflation and an indirect effect on the cost of processing food in the electricity-driven factories. In the recent past, the Communications basket (cell phone tariffs) has also contributed to inflation owing to the ongoing price wars between the major service providers in this sub-sector.

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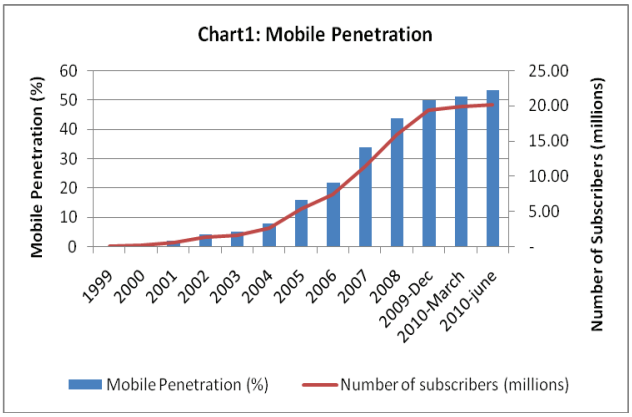
Competition in the Mobile Telephony Industry in Kenya: Nature and Price Implications

1. Introduction

The mobile telephone sector in Kenya has grown rapidly over the past decade. Mobile subscription almost tripled from 7.34 million subscribers in June 2006 to 24.96 million subscribers in December 2010, while penetration rate more than doubled from 21.6 percent per 100 inhabitants to 55.9 percent per 100 inhabitants over the same period (Chart 1). The number of minutes of local calls (mobile traffic) made on mobile network increased by about 34 percent from 4.96 billion to 6.63 billion over the same period. Reduced cost of cell phones, innovativeness in use of handsets (money transfer, internet access, payment services etc) and in particular, the reduced tariff plans resulting from increased competition has contributed to an increase in subscription, especially the escalation witnessed in the most recent period.



Total revenue and investment have also continued on an upward trend, increasing by about 996 percent and 196 percent respectively, between 2001 and 2009, as the operators expand their networks to cater for increasing demand for mobile services. The current level of competition in the country has also resulted in a network expansion and establishment of new sites in areas hitherto considered uneconomical, including some rural areas. This has in effect increased the level of population coverage, from average of about 52 percent in 2004 to about 84.5 percent in June 2009 and 86 percent by March 2010. The inclusion of the poor is also supported by a decline in the average revenue per user (ARPU) per month of about 66 percent between 2001 and 2009, reflecting an increase in subscription among low income earners with low usage of the services (Table 1). However, as of March 2010, the geographical coverage was only a meagre 35 percent, while the rest of the country remains uncovered, especially the arid and semi arid areas.

The mobile telephony industry can be characterized as an oligopolistic competitive market, currently with 4 providers,

Table 1: Mobile Revenue, Investment and Population coverage

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mobile Annual Revenue (Million)	7674	16322	22239	28393	37627	46456	57998	72625	84166
Average Revenue per User (ARPU) per Month	1092.92	1026.37	1165	929.28	595.7	527.41	425.85	376.56	362.2
Mobile Annual Investment(Million)	11851	19173	23662	28920	38670	44600	21221	29436	35184
Population Coverage (%)	-	-	-	52	62	65	77	83	84.5

Source: CCK – Various reports

namely, Safaricom, Zain, Orange and Yu. Since its launch in 1996, Safaricom operated as a monopoly until 2000 when Kencell (now Airtel)[1] was licensed. This was the beginning of competition in the mobile telephone sector. Telkom/Orange was licensed to operate a global system for mobile communication - GSM network in 2007. Although Safaricom is still the dominant market player, competition resulting from the entrance of other players in the market has led to a decline of its market share. Whereas Safaricom accounted for about 80.1 percent of the total subscription in June 2009, this declined to 75.9 percent as of September 2010, followed by Zain (now Airtel) at 13.5 percent with all the other providers accounting for 10.6 percent (Table 2). Safaricom and Zain control about 89.4% of the market i.e. total subscriptions. In such an oligopolistic market situation with only a few providers, the pricing and production decisions of one firm are bound to affect overall industry price and production levels, and hence the performance of other firms.

Hence, actions by one service provider elicits a reaction by the others. For instance, a price cut by one provider affects the profitability of the other players, and since they provide similar service, other competitors would be willing to slash their prices to protect market share. Such 'price wars' lead to lower prices and low profits.

Table 2 SUBCRIPTIONS (In Millions)

	Dec-07	Jun-08	Dec-08	Jan-09	Jun-09	Dec-09	Jun-10	Sep-10	Dec-10
Safaricom	9.25	11.02	12.83	13.05	13.91	15.24	16.24	16.71	17.45
Zain	2.10	1.91	3.08	2.95	2.42	2.09	1.83	2.98	3.79
Essar Telecom				0.48	0.40	1.04	1.49	1.47	1.59
Orange				0.04	0.63	1.00	0.55	0.88	2.13
	Share of Subscription								
Safaricom	81.5	85.2	80.6	79.0	80.1	78.7	80.7	75.9	69.9
Zain	18.5	14.8	19.4	17.8	13.9	10.8	9.1	13.5	15.2
Essar Telecom				2.9	2.3	5.4	7.4	6.7	6.4
Orange				0.3	3.6	5.2	2.7	4.0	8.5

Source: Computed using CCK data from various reports

Oligopolistic competitive behaviour is analysed through firms' strategies against each other. Studies that examine the oligopolistic firm behaviour mainly apply techniques of game theory to characterize and provide insights into profit-maximizing, price setting strategies of market rivals under different assumptions (see, Matsumura 2003; Pal and White 1998, Lal 1990, among others). The nature of interactions among firms is often assumed to be non-cooperative (Kadiyali,

et al., 1996). In highly concentrated oligopoly where two firms control close to 90 percent of the market, such strategic interactions between firms are traditionally analysed in the context of quantity-setting framework using Stackelberg and Cournot duopoly models. Using the two models as a guiding framework, this article analyses the nature and price implications of competition in the mobile telephony industry, focusing on the two providers that have dominated the market and have been in existence for some time, i.e. Safaricom and Zain (now Airtel).

1. Models of Oligopolistic Firm Behaviour

There are 3 types of duopoly models; **Stackelberg, Cournot and Bertrand**. Bertrand model focuses on price competition. However, most analyses focus on quantity competition models since much of the price competition is geared towards capturing the market and hence, essentially work out as either Cournot or Stackelberg structure. The article therefore focuses on Stackelberg and Cournot models of quantity/market share competition.

Under Stackelberg model, a few firms compete by selling a homogeneous good or service, by each setting the quantity. Assuming a duopoly setting, the game is sequential such that one firm, i.e. the leader chooses the quantity first while other firm, i.e. the follower observes the leader's quantity and then own chooses quantity. Each firm therefore knows what the other firm is doing. Once the two quantities are chosen price is set to clear the market. The leader knows how the follower reacts and takes that into account in deciding how much output to produce.

The installed capacity plays a significant role in determining prices and consequently profits in these models (See the Annex for a further exposition). However, this may not necessarily have direct implication on who becomes the market leader in the short run. Safaricom has a higher installed capacity and first-mover advantage—i.e. advantage gained by being the initial and first significant mobile service provider to move into the market, but is not necessarily the leader in the short run. The game should start from the installed capacity that determines the quantity to be supplied in the market in this case.

Under Cournot competition model, each firm chooses an amount of output/market share to maximise its profit, on the assumption that the other is doing likewise. That is, each firm moves simultaneously and does not know the output decision of the other firm. Cournot models fall under simultaneous-move games.

Cournot–Nash model assumes that each firm believes the other firm will not change its output. This is short run since the installed capacity is pre-determined. Cournot-Nash equilibrium is defined as a set of outputs for two firms such that when one firm produces its equilibrium output, the profit-maximizing level of output for the other firm is its equilibrium level of output (Fulton, 1997). The price and quantity combination derived from Cournot-Nash model lies between that derived from a perfectly competitive model and that derived from monopoly model but is greater than that derived from Stackelberg model. Bringing the various models together, it can be concluded that in terms of profits and prices, Stackelberg £ Cournot £ Monopoly. In other words, Stackelberg has the least profits and price level but the highest consumer surplus followed by Cournot, while monopoly has the highest profits and price level and least consumer surplus.

2. Application to Mobile Telephony Industry

Mobile telephony has lately witnessed increased competition. This has intensified to product branding, differentiation and wide range of services offered, to marketing tactics that focus on promotions. Other aspects of competition i.e. quality aspects such as best product offered are also being emphasized. The two main providers, Safaricom and Zain are setting the rules of competition. Entry of new players such as YU can not also be ignored. As the new players enter the market, pricing is becoming an effective plank to get a foothold, i.e. whether to expand or retain the market share.

Safaricom was clearly considered to be market leader given its initial monopoly position and control of the market arising from first-mover advantage. Thus, the market exhibited more features of Stackelberg model especially in terms of market leadership with Zain (then Celtel), as follower but again, the price gains were minimal. As a significant first-mover in the market, Safaricom benefitted from huge profit margins arising from the monopolistic status. This is not surprising—analysis of oligopolistic markets has shown that a 'stronger' brand/firm cut price less often than a 'weaker' brand/firm (Kadiyali et al., 1996). Because of large market control and lack of aggressive competition, there was no incentive for Safaricom to eat into its profits by cutting prices. However, this has changed, especially with entrance of other providers in the market and the determination by Zain to increase its market share. Currently, Safaricom remains focused on maintaining its market share which has declined in the face of increased competition from Zain and other service providers. However, it is not explicitly clear whether the two main players behave in a strictly sequentially manner or not. There are a number of occasions when the first move (in terms of price or branding) has been initiated by Safaricom and at other times by Zain.

However, one of the most significant moves in the market was witnessed in August 2010 when Zain was the first to substantially cut its calling rates in August 2010 before Safaricom responded, thus depicting features of simultaneous-move game, i.e. Cournot model. Zain's strategic action to increase its market share by a price cut, almost certainly elicited a similar reaction from Safaricom. The price cuts are meant to eat into each other's market share. The other two market players YU and Orange also acted similarly– thus reinforcing the reactionary behaviour in the industry. Moreover, this has had significant gains in terms of reduction of prices (calling rates) never witnessed before.[2] The experience of the mobile telephony industry has shown new entrants or late movers' ability to study the first-mover's techniques and strategies and act accordingly.

As depicted in Table 3, the initial relative lack of competition appears to have had a trade off, as prices were relatively high until new entry occurred in 2008/9. The average mobile tariff to the same network, off network, and to fixed lines dropped by 28 percent, 37 percent and 31 percent respectively between June, 2004 and June, 2008, while in the last two years to June 2010, these ratios have declined substantially by 67 Percent, 49 percent and 48 percent respectively. The cost of sending SMS's has also come down. The introduction of new entrants has coincided with falling prices and rising mobile penetration, which in part is due to the decrease in the regulated termination charge implemented by CCK in 2007. Over the period June 2004 and June 2010, the average mobile tariff to the same network, off network, and to fixed lines declined by 76 percent, 68 percent and 64 percent respectively, clearly indicating the current competition in the mobile telephony industry has

resulted in substantial price gains to consumers.

These price reductions are further supported by recent data on call tariff rates for Safaricom and Zain for different types of tariffs. For Safaricom, the average calling rate (averaged across different types of tariff plans) declined from about Ksh 19.6 per minute in June 2007 to about Ksh 8.3 per minute in April 2010, declining further to the tariff of Ksh 3 per minute in August 2010, though this was initially on a promotional offer.[3] Similarly, calls to other networks declined from Ksh 25.9 per minute in June 2007 to Ksh. 12 per minute in April 2010 to the rate of Ksh 3 per minute. For Zain, calling rates to same network declined from about Ksh. 21.8 per minute in June 2007 to about Ksh 6.5 per minute in May 2010, declining further to a rate of Ksh 3 per minute in August 2010. The nature of interactions between the two firms is non-cooperative. This is good in a way because it provides less room for colluding. This is an outcome of the strategic interactions and competition among the firms.

CCK has played an important role of enhancing the competition, which has led to lower prices[4] and an increase in consumer welfare. Some of the main regulatory milestones includes: the liberalization of the international gateway in Kenya, in 2004 that resulted in a decrease in the cost of international calls by about 50 percent compared to previously; regulation of interconnection tariffs that constraints dominant firms from charging high prices for connecting calls from other network in 2007, allowing a decline in inter-network calling charges; and, the introduction of a new licensing framework and regime - Unified Licensing Framework (ULF) in 2008, that among other things removed the restrictions on levels of foreign ownership that required 30 percent local stake for mobile telephone licence holders and hence has facilitated new entrants (see CCK 2010). Given the resultant price gains which are beneficial especially to the majority of the population who are poor or low income earners, the current competition should be encouraged and enhanced further. Usually, models of strategic behaviour are characterised by price stability once strategies are realised. But this depends on the market share and economic rents being shared. In terms of market share, there still exist potential, given the current levels of population and geographical coverage.

3. Conclusion

The mobile telephony industry has witnessed increased competition in the recent past. This has resulted in improved interconnectivity, played a role in reducing transaction costs thereby facilitating private sector development; and, is improving financial inclusion of the poor. The competition in the sector has led to increased subscriber growth and a fall in prices (i.e. calling rates). The resultant price gains are not only good for the economy but also beneficial to the majority of the population. Competition has also created incentive to design services that meet the needs of customers, including price and product promotions targeted to the poor customers, and value added services with additional developmental benefits such as MPESA services which facilitate financial inclusion of the excluded especially in rural areas. This has been possible with appropriate regulation by Communication Commission of Kenya.

Table 3: Average Mobile Tariff (Ksh)

Year	2004	2005	2006	2007	2008	2009	2010*
Charges to Same Network	20.18	19.23	18.89	16.17	14.57	7	4.78
Charges to Another Mobile Network	32.38	27.37	26.69	22.63	20.29	9.3	10.265
Charges to Fixed Lines	28.76	27.51	25.52	22.63	19.98	9.03	10.265

Source: CCK – Various reports, *is the figure for March, 2010.

Although Safaricom still retains a significant share of the market partly resulting from installed capacity and first-mover advantage, entrance of new players in the market has a challenge, as evidenced by the decline its market share. Firms have different installed capacities and so have different pricing strategies. In the most significant recent move by Zain (now Airtel), we have seen that the price setter is not the leader, as Zain moved to upset the price competition model and the leader became the follower. There are indications that the current competition will continue until perhaps a true market leader clearly stamps authority or a new leader emerges, in which case the observed Cournot structure will have mutated into Stackelberg kind-of structure. There is therefore, scope for further price reduction. The emerging competition is based not only prices but also on the quality and range of services offered. However, with increased competition come a number of challenges. For new entrants, this includes the inequity in the market especially given the dominance of one player and the huge set up costs. Second is the multiple SIM phenomenon as evidenced by the increase in the supply of multiple SIM phones which allows customers to use secondary SIM for the duration of the promotional offer. For strong players this may have little impact but for the weak players, this could mean a large loss of revenue. Given the challenges faced by this sector, the next leap of growth that will ensure continued survival will most likely come from building a core proposition involving branding, service quality, new products and innovations. There will be need also to focus on the untapped mobile market by encouraging more consumption (expanding the geographical coverage to remote areas), besides focusing on sharing the existing market size.

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Endnotes

1 Kencell became Celtel, Celtel became Zain and Zain became Airtel.

2 Safaricom first responded by offering a price cut on promotional basis—perhaps opting to wait and see what would happen next before changing its move—e.g. whether the price cuts are sustainable in the long run.

3 The analysed data for calling rates is for peak hours and hence excludes off-peak offers. For Safaricom, the current price cut (5/= top up 50-10; 3/= for 20-30 and 2/= for 100 to 1000) is on promotion basis, not a tariff plan.

4 For the communication sub-sector as a whole, the percentage decline in price as measured by the consumer price index (i.e. inflation over the past 12 months) of about -24% in August and September 2010 is largely as a result of the price cuts in the mobile telephony industry.

ANNEX: Model of strategic interaction in the mobile telephony industry in Kenya

For the sake of simplicity, we assume only two firms , Firm 1 being Safaricom and Firm 2 being Airtel. The two firms have different capacities installed given as K_i (i=1,2) and so have different pricing strategies. The price setter is not necessarily the leader, we have occasions where firm 2 upset the price competition model and leader becomes the follower. Firm 1 is larger than Firm 2, so that $K_1 > K_2$. The firms maximize profits and compete for a bigger market share (which we consider to be the quantity), through price cuts. Adopting the Stackelberg-Spence (1977) – Dixit (1980) model, the initial capital installed is sunk-costs which signal that the firm will be in business tomorrow. The firm in most cases cannot re-sell the equipments – capital has changed hands severally to what is now Airtel. Delayed investment by Airtel gave Safaricom first mover advantages. The strategic interaction between the two firms can be outlined below:

$$Q(P, K_1, K_2) = 1 - P(q_1 + q_2) \quad (1)$$

This expression is non-negative, where P is the price at which the consumers can purchase the product.

Its inverse demand function becomes ;

$$P = 1 - Q\ (P_1 + P_2)$$

Consumers in first instance buy from the firm that charges the lowest price for the product. Assuming that the firms have fully recovered their initial set up costs and only faces a cost structure of the form $C_i(q_i)$ that depends on their output, and the level of market capacities (K_i), the profit function can be expressed as

$$\Pi_i = P_i q_i - C_i\ (q_i, K_i) \quad (2)$$

In particular, to engage in a price war, each firm solves the following constrained maximization problem:

Firm 1:

$$Max_{P_1}\{Q(P_1, P_2) - K_2\}P_1 - C_1(Q_1, K_1) \quad (3)$$

Subject to

$$P_1 \geq P_2$$

$$Q(P_1, P_2) - K_2 \leq K_1$$

The langragian of the problem is denoted by

$$L(P_1, P_2, \gamma) = \{Q(p_1, p_2) - K_2\}p_1 - C_1(Q_1, K_1) + \gamma(p_1 - p_2) + \mu\{K_1 + K_2 - Q(P_1, P_2)\} \quad (4)$$

With γ and $\mu \geq 0$.

Employing the Karush-Kuhn-Tucker conditions, we get the optimality conditions:

$$\frac{\partial L}{\partial p_1} = 0,\ \frac{\partial L}{\partial p_2} = 0, \gamma(p_1 - p_2) = 0, \mu\{K_1 + K_2 - Q(P_1, P_2)\} = 0 \quad (5)$$

The symmetry applies for firm 2.

The solution to this system of equations, give the reaction functions and tells how it shifts as capacity changes. Firm 1 by its choice of capacity can achieve any one range output subject to firm 2's reaction function, which may make it acquire the privilege of quantity leadership. The exact behavior of each firm profit as capacity changes requires totally differentiating the optimality conditions in equation (5) above, and examining the effect of price changes. In general, each firm chooses it capacity level and then competes in prices, to maximize its profits. The computation of price from the inverse demand curve in the Cournot model can be thought of as a proxy for price competition. For a wide range of capacity choices, the unique equilibrium of the pricing interactions involves both firms setting their prices to P. Cournot quantity competition (in this case market shares) hence involve long run competition through capacity choices, with price competition occurring in the short run given the chosen levels of capacity. For the sector in Kenya, this analysis suggests that the price wars will continue until capacity choices are such that the entire market is served and a clear market leader emerges, to the benefit of the consumer with prices that are almost similar. Competition will revert to product differentiation going forward.

For instance, for the duopoly example, the entire market size is served by only 2 firms, if

$Q\ (P_1, P_2) = K_1 + K_2$

In such a case firm 2 has no incentive to engage in a price war and hence

$P_1 = P_2$

Firm 2 setting $P_1 < P_2$ is dominated by $P_1 = P_2$ as long as $Q\ (P_1, P_2) = K_1 + K_2$.

The Dilemma of the Interest Rate Structure in Kenya

Background

Interest rates in Kenya were liberalized in July 1991. The immediate experience following the liberalization was very promising. Positive real interest rates were recorded and the spread between the lending and the deposit rates narrowed. However, this was short lived mainly due to the high inflationary conditions prevailing at that time. The short-term deposit rates continued to increase at a faster rate compared with the longer term deposit rates. Similarly, following liberalization, the lending rates by Kenyan banks have remained high over the years despite developments in the banking sector and the macro-economic stability witnessed in the country, which ideally should result in a commensurate drop in lending rates. The Central Bank of Kenya (CBK) has continued to signal the banking sector on the need to lower their lending rates given these developments. Several initiatives have been implemented to address the factors that banks cite as reasons for the high lending rates, but so far the response has been slow.

Structural Transformation in the Banking Sector

Over the last five years, the Kenyan banking sector has experienced an exponential growth of bank branches from 534 in December 2005 to 1,063 as at December 2010. The highest bank branch growth was witnessed in rural areas at 140% compared to 68% in the urban areas. To complement bank branch expansion, the Central Bank of Kenya (CBK) embarked on licensing of deposit taking microfinance institutions (DTMs) pursuant to the Microfinance Act, 2006. Two of the five licensed DTMs as at December 2010 had opened 31 branches across the country.

The notable resultant benefit from bank branch network expansion is evident from the growth in deposit accounts from 2.55 million in 2005 to over 12 million as at December 2010. Micro deposit accounts experienced a massive growth of 425% over the period. This growth is not only attributable to branch expansion but also to significant reduction in entry barriers such as costs of maintaining micro accounts. Introduction of innovative bank products have also played a role.

Despite the tremendous growth in bank outreach and enhanced deposit mobilization capacity, the growth in demand for credit has been dismal with loan accounts increasing from 589,296 in 2005 to only 1.8 million as at December 2010. With the total loans and advances at 69% of total deposits as at December 2010, it shows that there is still substantial room to lend more. High lending rates and resultant high interest rate spreads discourage borrowing. The enhanced deposit mobilization capacity of banks as a result of decline of barriers to entry such as physical distance and account operating costs imply that the high spreads signals inefficiency and lack of effective competition in the financial sector. The continued drop in credit risk, liquidity risk, level of non-performing loans, inflation rate and the Treasury bill rate are sufficient signals for banks to reduce their lending rates. However, the interest rate spread has stuck to above 10% over the last 10 years. This necessitated a decomposition of the interest rate spread to determine the contributing factors.

The decomposition indicates that overheads and profit margin account for over 60% of the spread. Overheads account for close to 40% of the spread. To address this high spread, CBK has partnered with the Government and market players to roll out various initiatives to reduce the cost of doing business.

Working Policy Solutions

The structural transformation in the banking sector is the result of concerted efforts by the players led by the Central Bank of Kenya (CBK). CBK has continued to create an enabling environment that has among others resulted in increased supply of loanable funds. The initiatives that have contributed to an enabling environment include:

- **Adoption of mobile financial services** – With the banks integrating their technology platforms with mobile phone companies, bank customers are able to conveniently perform banking transactions at their comfort. Reduced traffic to banking halls is an oppoturnity for banks to lower their overheads and consequently lower their lending rates.

- **Licensing of Deposit Taking Microfinance (DTMs) Institutions** – Given the DTMs competence in serving lower income segments of the population, their entry into the financial sector has opened a window to expand the perimeter of the formal financial sector. With the expected competition for savings that DTMs will introduce, banks may have to restructure their cost structures in order to remain profitable.

- **Continued branch expansion by banks and DTMs** – Due to intense competition among the players, branch expansion is expected to continue, especially in rural and peri-urban areas. To ensure that these branches become self sustaining, banks and DTMs will have to continue re-examining their entry barriers to ensure that they do not lock out any of the bankable customers.

- **Moral suasion** – CBK has continued to engage banks to consider lowering their lending rates based on the decline in the cited underlying contributory factors. A partnership approach to the development of the banking sector is expected to play a part in not only lowering lending rates but also development of the sector to the satisfaction of all players.

- Increased capital ratios – The progressive increase in the minimum core capital for banks from Kshs 250 million in 2008 to Kshs 1 billion in 2012 will enable banks to benefit from economies of scale. This increase took cognizance of the expanding volumes of business that Kenyan banks have engaged in and the resultant risk exposures.

CBK has also continued to provide macro-level support to the banking sector to reduce their overhead costs. This support is in form of:

- Licensing of credit reference bureaus to address the perennial problem of information asymmetry that had necessitated banks to factor in a risk premium in their lending rates. With banks embracing credit reports as part of their credit appraisal processes, they should be able to increase their scope for lending since financial identity will substitute physical collateral.
- Opening of Currency Centres to reduce cash in transit costs, for banks and their branches across the country, together with the risks involved. The three currency centres that have so far been opened have recorded large volumes of transactions. CBK and KBA will in due course consider additional areas that deserve currency centres.
- Rollout of agent banking mechanisms that allows banks to engage third parties to offer specified banking services on their behalf. So far six banks have obtained approval to rollout their agency networks and more than five thousand specific agents have been engaged. Agent banking turns non-bank outlets into financial service providers. Agent banking mainly leverages on information technology and is expected to push the financial inclusion to new frontiers. DTMs will also be able to engage agents to offer their services in due course once the necessary guidelines are in place.

Banks also have a role to play in the efforts towards lowering lending rates. They can do this through adoption of appropriate information technology to reduce operational costs. Banking technologies increase the speed at which banking services are offered as well as enhancing efficiency. Banks can also source for long term funds in the bond markets for onward long term lending at reasonable rates. This will enable banks to address the anomaly of maturity mismatch of their deposits and loans.

The Government is also confronting the problem through direct support schemes such as the Micro and Small Enterprises (MSEs) revolving fund launched by the Ministry of Finance in March 2011.

Speedy resolution of commercial cases is another avenue to lowering banks overhead costs. In the Kenyan constitution, emphasis has been placed on the need to promote Alternative Dispute Resolution (ADR) Mechanisms. Adoption of ADR mechanisms such as arbitration, mediation, conciliation, negotiation and settlement or collaboration, will complement ongoing reforms in the judiciary. Adoption of ADR and judiciary reforms will contribute to reduced legal costs which constitute a sizeable portion of banks overhead costs.

Finally, financial consumer protection has been cited as the missing link in the ongoing financial inclusion efforts. In this regard, the entrenching of consumer protection rights in the Kenyan constitution is timely. Efforts are at advanced stages to develop a national strategy on financial education and consumer protection. An educated consumer is an empowered and protected consumer. Such consumers are able to shop around and negotiate for better rates.

Conclusion

The level of interest rate spread in Kenya is high. Despite commendable structural transformation that the banking sector has undergone over the last 10 years, there has been little change in the interest spread. Policy initiatives and reforms by the CBK and the Government to address the factors cited as contributing to the high lending rates are yet to yield desired results. In this regard, commercial banks need to relook at the components of the interest rate spread and explore reductions, especially given the ongoing policy reform initiatives. It is noteworthy that high lending rates are a recipe for low investments and increased risk of default and it deters economic growth.

It is expected that once all the policy reform initiatives enumerated are fully entrenched, banks and other lenders should be incentivized enough to lower their lending rates to the levels within reach. In the meantime, the rates should be lowered progressively as the benefits from the initiatives take root. With reasonable lending rates and favourable terms and conditions, banks and other lenders will play their expected role of financing investments in productive sectors of our economy which will enable Kenya move to the envisaged middle income country status under Vision 2030.

Government Securities Yield Curve Shifts, Implications on Lending Rates and the Economy

I. Introduction

The yield curve is a graphical presentation of the relationship between yield and time to maturity for bonds of the same class and credit quality (the at the same risk level). It depicts the overall relationship that prevails at a given time in the marketplace between bond and yields that are due solely to differences in maturity. This relationship between yields and maturities is also known as the term structure of interest rates. Yield curves assume different shapes and levels (slopes and curvatures) depending on several factors –observed and unobserved. Equally varied is the information content of yield curves depending of the shapes and movements. This paper reviews shifts in the yield curve for Government securities and its implications on the economy. It also seeks to highlight the links between bond yields and interest rates on long-term bank loans.

I. Government Securities Yield Curve: 2009-2010

June –December 2009

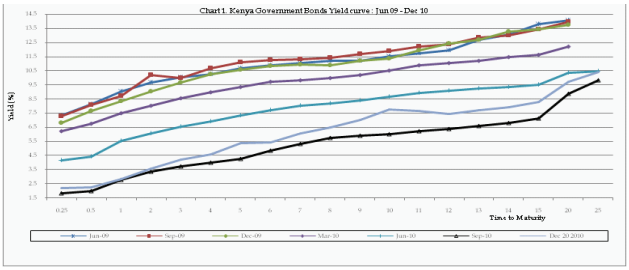
The Kenya Government securities yield curve remained upward sloping during the second half of 2009 (Chart 1) with a flattening tendency for the medium term maturities (8-15 year). This means that yields on Government securities were in tandem with time to maturity. Only insignificant changes occurred, in terms of level, slope or curvature, during this period. During this period the markets reflected a sense that inflation as reflected in the official statistics numbers was out of control and did not sync with Central Bank rates.

December 2009 –September 2010

However, between December 2009 and November 2010, the yield curve assumed persistent downward parallel shifts as securities of similar maturity attracted successive diminishing yields. Although in every downward shift of the yield curve there were muted variations in the magnitude of decline in the yields across the maturity profiles on average the yields dropped by 116 basis points in the first quarter of 2010, then by 198 basis points in the second quarter and by 249 basis points in the third quarter of 2010. Overall yields on Government securities dropped by 563 basis points in general over the period December 2009 to September 2010. This downward shift largely reflected the period during which investors absorbed the new shift to the use of the geometric mean by the Kenya National Bureau of Statistics, from the old over-estimating arithmetic methodology. This structural break meant that the then existing bond holding structure [for most investors] was out of sync with the new inflation numbers. A hasty calibration of expectations took place as investors sought to take positions in existing high yielding bonds as it was assumed that the future would see a significant fall in returns across the whole yield curve.

The end of this period saw a reversal of this trend as had now adjusted their portfolios to the new inflation measuring regime and the monetary easing.

Steeper short-end of YC reflects inertia of the high liquidity effects for much of 2010. Save for any immediate monetary intervention, the trend in the short-term end has bottomed and is upwards inclined.



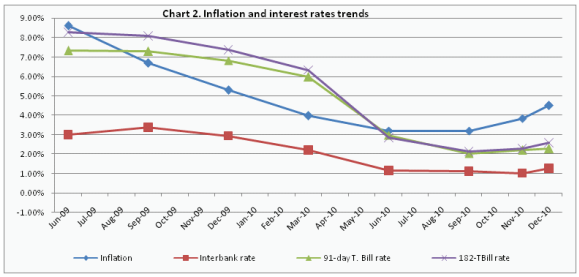
The flattening at the 12-13 maturity segments will fade out as prices for these securities are likely to drop to give room to higher yields.

December 2010

In December 2010 yields curve has shifted upward with yield increasing across all maturities though by bigger margins at the medium and at the long end of the maturities, thus leading to steepening at the long-end of the yield curve.

Chart 2 shows trends in inflation and interest rates for the period between June 2009 and December 2010.

As inflation remained in a declining trend during the period June 2009 to September 2010 and interest rates decreased, yields on the Government securities dropped in successive trading and bottomed in September. Similar bottoming has been observed in both inflation and interest rates as investors have since been



pursuing to claw back yield given up during the first half of 2010.

Box 1 is a summary of factors that may be associated with the shifts in the Government securities yield curve during 2010.

II. Economic Implications of Yield Curve Shifts

Government Borrowing

For issuers, the yield curve acts as a benchmark for pricing other financial instruments in the market as well as predicting the yield/prices of future government issuances. For fiscal

Box 1. Factors associated with yield curve shifts		
A. LEVEL/SHIFT FACTORS	**B. SLOPE FACTORS**	**C. HUMP FACTORS**
1. Economic Activity		
Rapid and sustained pick up in economic activity, boosting market expectations	• Fiscal expansion in 2010/2011 budget • Perceived positive economic activity which could lead to interest rates increase in the future	
2. Monetary stance		
Change of CBR to: • July 2009: 7.75 • Nov 2009: 7.0 • Mar 2010: 6.5 • July 2010: 6.0 Change in CRR level from 8.0% to 6.0% in 2003 signalled decline in short term interest rates. 91-day average rate dropped to 2.035% from 7.215% and medium and long term bond yields assumed downward trend. These led to expectations of lower interest rates leading to downward shifts in the yield curve.	• Monetary policy easing leading to low interest rates at the lower end of the yield curve.	• Rapid decline in the short-term interest rates due to monetary easing locally and globally
3. Other shocks		
• New constitutional order and upgrading in sovereign credit rating following the adoption of a new constitutions • Liquidity due to issuer's action: big size infrastructure bonds, benchmark bonds and bonds reopening, adoption of Automatic Trading System (ATS), are initiatives that have resulted in increased trading activity (supply) thus reduction in bond yields across all maturities. • Liquidity due to bearish equities market leading to capital flight to fixed income securities- a supply shock- reducing yields • Front loading of fiscal borrowing leading to interest reversal in December	• December 2010 yield curve steepening due liquidity tightening in the money market due to the increase in public spending during festive season ignited expectations of high interest rates especially in the medium and the long-end of the yield curve. • Adoption of geometric inflation computation method since October 2009 which led to lower inflation expectations	• Issuing of 10 year bond in October 2010 and 5 year bond in November 2010 with market-determined coupons caused humps above the yield curve at the two respective maturity points

borrowing usually three factors are considered: price (Treasury bill rates-interest rates), volumes (stock)-determined by the fiscal deficit, and inter-temporal preferences. In most situations government budgets are by their very nature often constrained such that expenditure patterns have national, strategic and political implications. Midstream in the financial year, the inter-temporal preference is a closed option. The best strategy by government is to therefore plan well ahead of time so as to avoid being boxed into such a game. The borrowing program for January - June 2011 (for Ksh.50, 064m out of Ksh.120bn for the fiscal year) will be implemented against a background of steepening yield curve. It is likely therefore that intensified borrowing may present a challenge to both realized amounts and interest rates stability. Because bond prices and yields move in opposite directions Government securities may have be issued at either high discounts or at high coupon rates. Where bond coupons will be marked to market, investors will only have one option: they will be inclined to bid bonds at a much lower price than those prevailing in the secondary market to optimize the yields.

Bond selling at discount satisfies the condition that:

Coupon Rate < Current Yield < YTM

In a static sense the outcome (assuming the market is competitive) depends purely on the balance of supply and demand. However if certain players enjoy market power there is greater uncertainty regarding the overall outcome. The result might be a rise in rates to a level higher than underlying supply and demand numbers might have otherwise suggested. In that sense investors will have assessed governments' ability to finance through a period in which the market attempts to offer funds at a higher rate and will have concluded that they hold the stronger hand over the short-term. Alternatively government might decline bids that offer expensive money whose price does not adequately reflect current supply and demand. So where investors calculate that government is constrained they will drive rates up over the short term even in the face of supply and demand numbers that might otherwise point towards stability.

Financial Sector:

The yield curve acts as a benchmark when investors and issuers

determine appropriate returns for holding bonds.[1] The greater the slope of the yield curve, the greater the gap between short- and long-term rates.

- Though still cheaper than commercial borrowing, bond issuers will however, find it more expensive to raise funds through bond issuance. The structural challenge is that most companies are unable to borrow money through the bond market. As such transmitting government market yields to the credit market is inefficient with the latter showing a higher spread than would seem appropriate.

- Steepening of the yield curve imply low bond prices in the secondary market which would likely lead to subdued bonds trading.

Ensuring that short term technical indicators that matter to the market are not ignored is critical. In the Kenyan market such a technical short term indicator would be the treasury overdraft limit that has however indicated the converse.

It is therefore not a foregone conclusion that rates have to rise significantly during 2011 as market expectation does not in itself equate reality particularly in a frontier market where relative investor expectations are often based on inadequate or incorrectly processed information due to market inefficiencies. The Central Bank should try to equip itself to conduct more research regarding the local market's capacity to absorb more debt without raising rates at different points along the yield curve. This would enable us to better differentiate between interest rate movements where the optimal counteractive maneuvers are regarding correcting short-term technicals (like the treasury overdraft) as opposed to others where the dynamics herald a clear shift in underlying supply and demand.

Inflation and real sector

- Currently the yield curve is gently rising while at the same time steepening on the longer-maturity end. In mature capital markets a steepening yield curve has often preceded an economic upturn the assumption being that economic expansion will lead to a rise in interest rates.[2][1] Inflation is a key concern for long term bond holders and as such investors will demand higher yields at longer maturities if they expect rapid economic growth primarily because of the associated risk of higher inflation and interest rates.[3][2]

III. Market Structure and Information Content in Yield Curves

The normal shape or slope of the yield curves is upward sloping (from left to right), which means that bond yields usually rise as time to maturity extends. Occasionally, the yield curve slopes downward, or inverts, but it generally does not stay inverted for long. Flat yield curves have also been observed in some economies at different times.

Most economists agree that two major factors affect the slope of the yield curve: investors' expectations for future interest rates; and "risk premiums" that investors require to hold long-term bonds. Because both investors' expectations for interest rates and the impact of risk premiums may be at play at the same time, interpreting the yield curves for longer-term bonds can be complicated. Economists and fixed-interest portfolio managers put great effort into trying to understand exactly what forces are driving yields at any given time and point on the yield curve. Three widely followed theories that attempt to explain these factors in detail have evolved:

(i) **The Pure Expectations Theory:** This theory holds that the slope of the yield curve reflects only investors' expectations for future short-term interest rates. Expectations theory forms the foundation of the slope of the curve. So if investors see a change they will either bid up or bid down rates accordingly and systematically. According to theory most of the time, investors expect interest rates to rise in the future, which accounts for the usual upward slope of the yield curve.

(ii) **The Liquidity Preference Theory:** This is an offshoot of the Pure Expectations Theory. It asserts that long-term interest rates not only reflect investors' assumptions about future interest rates but also include a term premium for holding long-term bonds, or the liquidity premium. This premium compensates investors for the added risk of having their money tied up for a longer period, including the greater price uncertainty. Investors will be driven by their sense of liquidity and whether this matches their needs. This appears to be the case even though the existence of secondary market would suggest otherwise. Because of the term premium, long-term bond yields tend to be higher than short-term yields, a long-term permanent modification that suggests an upward sloping curve. Holders demand liquidity (risk) premium for exposure to price uncertainty with long-term securities—results in an upward sloping curve. It suggests long-term rates will always be higher than short-term. Yield curves tend to be upward sloping more often, suggesting the liquidity preference is the dominant theory.

(iii) **The Preferred Habitat Theory:** This is another variation on the Pure Expectations Theory, states that in addition to interest rate expectations, investors have distinct investment horizons and require a meaningful premium to buy bonds with maturities outside their "preferred" maturity, or habitat. Proponents of this theory believe that short-term investors are more prevalent in the fixed-interest market and therefore, longer-term rates tend to be higher than short-term rates

Additionally, segmented markets theory is often considered to agree with and support the preferred habitat theory. This theory states that investors have very specific expectations when it comes to investing in securities with different lengths of maturity. As long as investors focus their trading activity on opportunities that comply with their preferences, those expectations remain within reason, including the degree of risk that the investor assumes. Should the investor choose to buy and sell securities that carry a maturity outside their preferences or habitat, this will impact on the amount of risk he or she assumes, and require an expectation of increased return to offset that risk.

Proponents of the market segmentation theory note that evaluating the yield curves of short-term and long-term markets often reveals that the rates of interest that apply seem to demonstrate little to no relationship to one another. Here, the yield curve associated with the market is found to be based more on the available supply of options, and the demand for them, and less on interest rates. At the same time, investors looking for a quick return are more likely to focus their attention on opportunities with a short maturity, while those looking

1 To this benchmark they add a credit risk & liquidity premium in arriving at their appropriate return

2 [1] As borrowers compete for funds and the monetary authorities put on the brakes to prevent a rise in inflation.

3 [2] When inflation is rising, central banks will often raise interest rates to fight inflation.

for investments to hold over a longer period of time will be attracted to the long-term market. Investment professionals in mature markets would expect to see commercial banks and general insurers focused on the shorter end of the market, speculators in both short to medium term bonds while Fund Managers, Pension Funds & long-term insurance companies largely focused on long term bonds. Naturally it is investors with a long term horizon who will show a keen interest in integrating macro-economic fundamentals into their investment decision making while those with a short term bias will exhibit a keener interest in technical factors that allow them to earn short term gains. Since the focus is on when the return will be realized, and not the interest that applies to investments on different lengths of maturity. However, investors who routinely execute investment transactions involving short-term as well as long-term maturities do not necessarily believe that the short term and the long-term markets function independently of one another, especially when it comes to interest rates. There is the potential of the short-term market to influence rates in the long-term market, and vice versa, especially with investors who are more focused on rates and less on duration.

Key Structural Differences between Kenya and Large International Markets

In deep and liquid markets, yields on all maturities tend to move together even though there would be distinct and divergent patterns between movements in short-term and long-term yields. Over short periods, relative supplies of securities have an impact on yields, altering the shape of the curve.

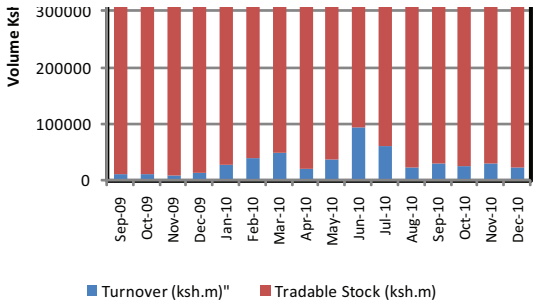
It is, however, important to note that in real world events can interrupt normal yield curve dynamics from time to time. In frontier financial markets, like Kenya, where secondary market trading is relatively illiquid structural market impediments can cause rates over short periods to move out of sync with respective maturities and expectations though these have to eventually touch base with reality. For example, changes in either supply or demand can cause the rates to get out of line with expectations. Thus supply and demand for different maturities will establish the specific yields for each maturity range. The higher the perceived risk, the greater the upward shift of the curve for that particular security. Likewise, monetary policy may be in a tightening mode, which would normally lead to a flatter bond yield curve. However, if the market concludes that monetary policy will not be enough to control growing inflation, longer-term yields[4] may rise faster than shorter-term yields do. This is because higher inflation expectations mean money will be worth less in the future. The introduction of risk in the yield curve will cause the curve to shift upward since another variable other than "maturity" has changed. This means that higher interest rates must be charged on long-term loans to make up for the risk.

The foregoing three theories used to explain yield curves were developed in deep, liquid and very competitive mature capital markets. While the theorems form useful analytical tools, to the extent that the Kenyan markets significantly depart from these assumptions, some of the forecasted conclusions might need some adjustment. In that sense, forecasts arising from them should be utilized carefully. While great progress has been made, the Kenyan market is still in its formative stages and exhibits certain traits that depart from those common to mature markets and these key differences are outlined below:

- Government represents the single largest borrower in the local bond market with a relatively small corporate bond market almost exclusively confined to the top blue chip companies

- Contrary to the market segmentation hypothesis that would predict Commercial Bank dominance only at the short end of the yield curve they continue to show dominance across all segments of the yield curve albeit falling –may be a learning curve phenomenon. Fund Managers and long-term insurers are relatively new to the market and therefore only now starting to make their presence felt.

- While the local primary market continues to attract a large swathe of cash, the secondary market remains relatively illiquid with infrequent trading, small average market size, trading between related parties with 75% of purchases placed in Hold-to-Maturity accounts (Table 1 and Chart 3a).



In such circumstances it is difficult to discern the extent to which secondary market prices efficiently signal investor expectations regarding present current and future supply and demand. In that sense we would expect greater instability on the yield curve than would be predicted by the dominant theories that seek to explain yield curve shape and movement given the contemporaneously structure of the local market.

Table 1: number of Deals* and Bonds Trading Turnover

	November 2010		December 2010	
Period	No. of deals	Amount (Ksh Mn)	No. of deals	Amount (Ksh Mn)
Week 1	36	5,143.8	67	3,290.70
Week 2	65	7,992.05	48	4,562.55
Week 3	60	7,290.3	68	6,882.90
Week 4	75	8,907.6	30	4,119.00
Week 5	23	22,24.15	22	3,715.50

*Bonds turnover were **Ksh 22.57bn** in **235** deals in December 2010, and **Ksh 31.56bn** in **259** deals in November 2010.

Some of the Measures in Place to Address these Challenges:

1. Development of the Market Maker/Primary Dealer is a key initiative designed to mitigate some of the factors previously mentioned through facilitating greater secondary market liquidity. This greater liquidity would improve price and informational efficiency as market participants' better process and use market information as they seek to determine prices.

2. What improved price efficiency would mean in the yield curve for a 10-year yield curve returning 8.5% on the secondary market is that on the balance investors have taken into account all relevant factors (including CBK inflation policy credibility and other macro-economic risks

4 Which are more sensitive than short term rates to inflation fears

facing Kenya) and have concluded that 8.5% reflects an adequate compensation for the risk incurred. The 10-year Kenya Government Treasury bond would then become a practical benchmark on which to price 10-year commercial debt securities. This way, bank funding would then start to better reflect the yield curve.

3. An upward shift in secondary market liquidity would increase the number of enterprises that rely on non-bank sources of financing as well as provide banks with an incentive to explore new markets. The inter-bank, vertical and horizontal repo markets would also function in a more orderly manner. Critically these improvements would boost the overall efficiency of the expectations channel particularly as regarding future policy decisions hence further improving the transmission mechanism of monetary policy.

IV. Conclusion and Recommendations

The festive season, combined with coincidence of corporate bond issues (Safaricom and CFC), Treasury bond issue and jump in inflation, illiquidity in bonds market among other factors have led to rise in interest rates on government securities since December 2010.

Below target borrowing for fiscal policy during the first half of 2010/11 financial year imply increased borrowing during the second half. Thus Interest rates volatility risks may arise from front-loading of Government securities in the third quarter of the financial year and reduced borrowing in the fourth quarter. There is therefore need for discussions on how to establish a sinking fund for smoothening Government borrowing. The fund would hold advance Government borrowing for use in the beginning of the next financial year.
The Bank remains committed to mitigate some of the constraints mentioned above through innovative measures that will allow market participants' better process and use of market information to improve secondary trading and pricing through improved liquidity around benchmark bonds. These measures will be implemented under the Government Securities Market Maker/Primary Dealer development initiative currently under review.

V. Bond Interest Rates and Pricing of Long-Term Bank Loans

In principle [based on mature capital markets] the pricing of loans is conducted in the following manner:

- Imputing systematic market risk which reflects an assessment of the uncertainty relevant to the specific country in question. It is assumed that the prevailing government yield curve provides an accurate assessment of this risk at each point of maturity. While the yield curve in Kenya now extend as far as 25 years the challenge is that bank lending is generally on a much shorter term scale and often bears little direct correlation with the relevant point on the yield curve as it is funded through deposits that are of shorter terms and are collateralized. As a result the yield curve is more often used as the basis for issuance of bonds by the top blue chip companies, a market from which the majority of companies are currently excluded.

- Pricing of individual or corporate risk based on an evaluation of historical factors that are associated with the ability to repay borrowings. These factors are broadly defined as is the five C's of credit: character (willingness to pay), capacity (cash flow), capital (wealth or net worth), collateral (security), and conditions (economic conditions) within the context of the prevailing judicial process. Character, capacity, capital, and collateral all have a positive influence on the bank's decision. A customer's sensitivity to poor economic conditions is a negative influence on the decision. In mature markets collateral is generally not a primary justification for extending credit. Rather, a credit decision justified in terms of the other four C's will then be reinforced by adequate collateral. An adjustment for the term of the loan may also be added. If the yield curve slopes upward, for example, banks would add a term premium to the base.

- In addition, the size of the risk and liquidity premiums in long-term interest rates may be affected by considerations to policy developments. Many institutions then develop customized models that are then used to score credit risk. However in a market like Kenya where the secondary market is relatively small with many small trades taking place between related parties the overall market is itself illiquid.

While many local banks are in principle aware of this approach[5] lack of information, conservative business practice and inadequate institutional capacity means that Kenyan lending practice differs markedly from the principles we have just outlined. Actual lending practice is therefore more strongly influenced by past relationships and a sense of what constitutes an adequate spread that is more informed by a fear of the unknown based on past experience rather than the current environment.

In a nutshell, local commercial banks are generally perceived to charge rates that are higher than the above analysis would suggest arguing that they face both administration costs and uncertainty due to an unpredictable legal environment when seeking to charge collateral and collect on it in the case of delinquency. Other lenders have argued that there is an element of market power where as a result of a perception of risk commercial banks are able to charge significantly different rates without fear of competition from others.

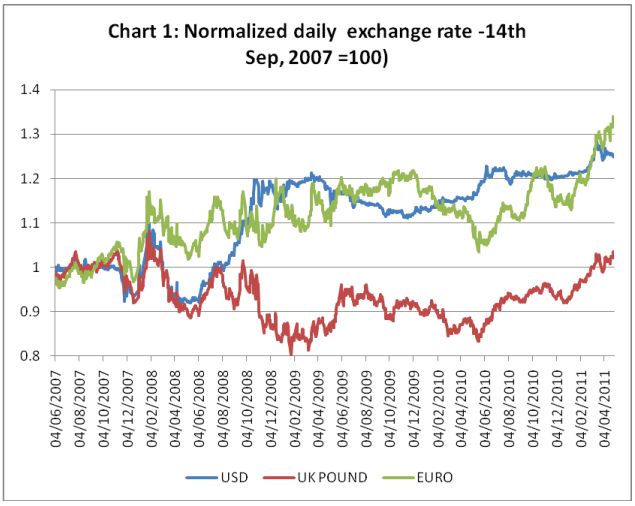
5 Most multinational banks even have models in place

Noise Traders And Kenya Shilling Exchange Rate Behaviour

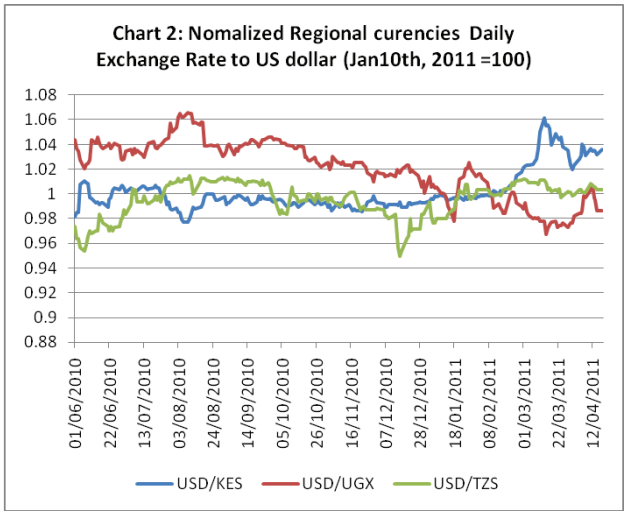
Introduction

Increasing openness and integration has elevated the importance of exchange rate as a key relative price for small open economies. In Kenya, concern has been raised on the trend of the Kenya Shilling exchange rate especially in the recent past. In the first half of 2010, the Kenya shilling depreciated against the US dollar but strengthened against both Sterling Pound and the Euro, before stabilizing against the US dollar and depreciating against both the Sterling Pound and the Euro for the better part of the second half of the year. This year, the Kenya shilling experienced similar depreciation spike to an all time low of over Ksh 86 per US dollar for some days in March, 2011. This article explains the likely factors behind the depreciation of the Kenya shilling, especially against the US dollar.

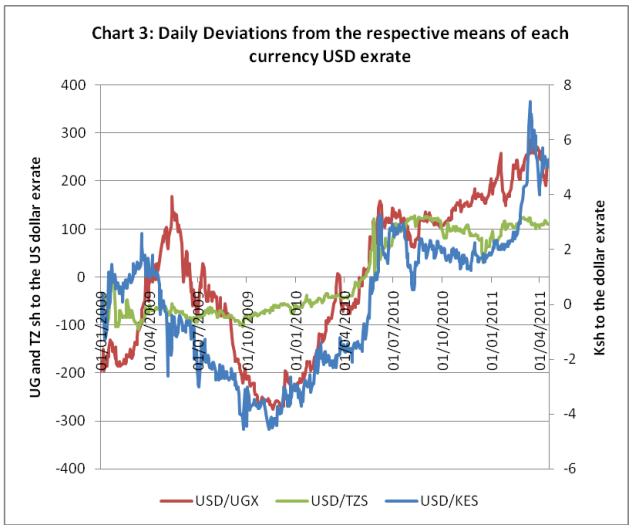
Chart 1 shows that that the Kenya shilling exchange rate to the dollar has experienced volatility over the years. While the volatility may be attributed to the effect of various shocks including 2007/2008 post election violence, Safaricom IPO, US sub-prime mortgage crisis, the Greek crisis, the Irish bank crisis, and most recently, the oil price surge following the MENA countries political crisis, other factors could also be behind the Kenya shilling volatility. Developments in the international financial markets following these shocks led to most major currencies weakening against the US dollar – flight to safety.



A similar pattern emerges when comparing the Kenya shilling,



Uganda shilling and Tanzania shilling, against the US dollar. The Uganda and Tanzania shilling also depreciated against the dollar for most of the 2010 to date (Chart 2). Chart 2 shows that the Kenya shilling has remained relatively more stable, suggesting that the trend of the Kenya shilling for most of 2010 has been influenced by factors outside the domestic economic fundamentals.



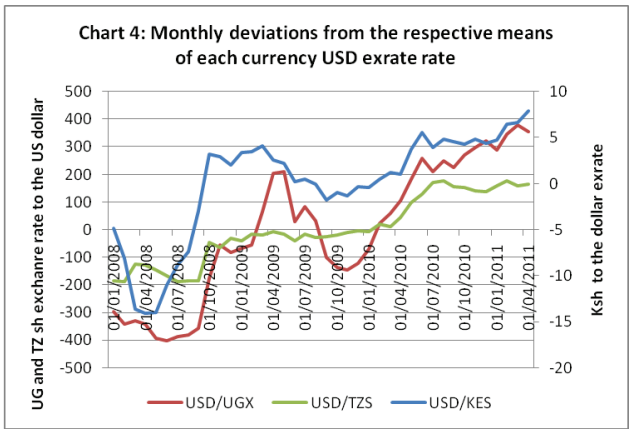


Chart 3 depicts the variation of each regional currency from their respective means. The Chart shows that the EAC regional currencies have a similar pattern – the three currencies seem to be tracking one another to a certain extent. This may reflect the increasing interdependence of these economies. The monthly chart suggests a similar pattern in chart 4. The observed depreciations of the Kenya shilling can not be supported by

economic fundamentals, which have remained sound in 2010. The second quarter growth rate improved to 5.4 percent from 4.4 percent growth in the first quarter. The banking system's total foreign exchange holdings increased from US$ 4,830 million in July 2009 to US$ 5,155 million in July 2010, with the Central Bank official reserves being within the four months of import cover statutory requirement. The balance of payment position improved from a deficit of US$ 422 million during the fiscal year 2008/09 to a surplus of US$ 592 million during the fiscal year 2009/10, among other positive macroeconomic developments. These developments suggest that any domestic explanation for the behaviour of the Kenya shilling exchange rate goes beyond the fundamentals.

The foreign exchange interbank market

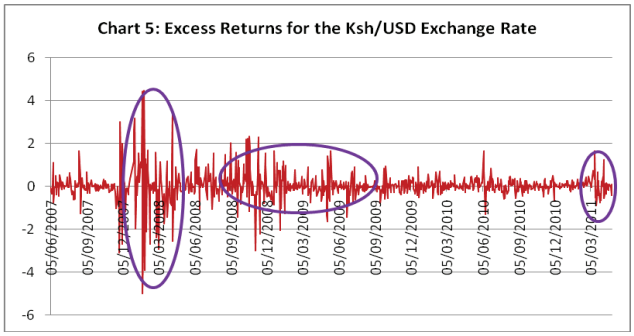
The main players in the foreign exchange market are commercial banks and the Central Bank of Kenya. Although there are 43 licensed banks, only about 30 are active in the foreign exchange interbank market. Trade between banks is facilitated through telephones or via the Reuters dealing system. Participating traders use Reuter's 3000 Extra- information system screen to display their buying and selling exchange rates daily, with instantaneous updates across board. Traders strive to quote a rate attractive enough to make their offers wining bids. **The main motivations for traders to participate in the foreign exchange market are either: for transaction as each trader typically try to match the requirements of suppliers and users of foreign exchange, in its clientele portfolio; or some traders take open positions for speculative purposes, that is, to make a profit.** For most of the active banks, their extend of participation also depends on whether they are foreign owned or not. Most of the foreign owned subsidiary banks sometimes require clearance or have to observe certain limits set, by the parent bank, when purchasing or selling foreign exchange.

Currency traders can be divided into two major groups; informed traders, who make rational decisions on currency values, and noise traders, who make decisions based on 'sentiments' unrelated to any underlying economic factors determining the exchange rate. Noise traders are investors who make decisions regarding buying and selling foreign currency or any asset based on their beliefs or sentiments, which are not guided by information on economic fundamentals. Arbitrage is risky since it is exploited only by fully rational investors who do not utilize such sentiments. This implies that investor sentiments are not fully countered by arbitrageurs and so affect asset returns by introducing a risk premium. The presence of noise traders causes gradual swing of asset prices away from their fundamentals levels, even when other traders are rational, that is, cause volatility. While volatility is essential to make profits from currency speculation, it is this same volatility that makes speculation risky. It is necessary to anticipate movements in the exchange rate, which, in an efficient market, is equivalent to anticipating the driving factors especially the effect of external shocks. Every other currency trader is also doing likewise, so it is necessary to be smarter or be one step ahead of the game.

Noise traders Vis-a Vis other factors

Volatility of an exchange rate could be due to changes in fundamental factors, such as the structure of a country's trade, but also infrequently could be attributed to the growing influence of noise traders, who follow 'group instincts' based on short-term trends and their motivation for quick profits. Although under flexible exchange rate system, the exchange rate is determined by the market fundamentals, increased openness and almost free capital mobility have meant that developments in the exchange rate are becoming more sensitive to traders' sentiments than before. Such sentiments introduce risk into assets transactions which prevents arbitrageurs and prices from converging to their fundamental value. The extent of activity of noise traders determines the noise component in asset's price, posing a risk externality to informed traders which would influence their entry and exit decisions. The informed traders' behaviour on the other hand would also affect the benefits noise traders derive from entering the market. As noise traders increase their speculation on a currency, its volatility is exacerbated. This, in turn creates greater opportunity for capitalizing on the risk premiums, attracting even more noise traders into the market. A speculative bubble may emerge and become self enforcing.

To provide a quick insight of the probable influence of noise traders requires establishing the possibility for the existence of a risk premium (excess return), attributed to investor sentiments in the foreign exchange market in Kenya. Presence of noise traders would cause asset prices to overreact and thus yield excess returns[7]. Excess return is measured as the difference between the expected return on a currency at time t, and the realized returns on the currency within the same period. Plotting excess returns in the vertical axis for each day (days in the horizontal axis) gives Chart 5 as: Chart 5 shows some significant elements of speculative activities, suggesting presence of noise traders, especially after significant external shocks to the economy. The Chart depicts significant activities of noise traders following the 2007/08 post election violence, Safaricom IPO, the US sub-prime mortgage crisis, and more recently the Middle East and North Africa political crisis. This is probably to take advantage of the ensuing uncertainty, through



increased speculative activities. That is, the presence of noise traders causes the exchange rate to overreact and thus yield a risk premium[8]. This outcome is supported by the observed behaviour where major players in the foreign exchange market devote time and resources to carry out technical analysis which guide them on how and when to invest to get some profit in the foreign exchange market. That is, players in the market use publicly available information to make decisions on when to invest to make a profit. The success of technical analysis suggests that exchange rate are not always determined by economic fundamentals but rather are driven away from their fundamentals values in the short run by traders' irrational expectations of future exchange rate changes.

The efficient markets hypothesis argues that publicly available information such as past prices should not help traders earn unusually high returns. This means that either the presence of noise traders introduces market sentiments that distorts the currency market, or that the efficient market hypothesis does not hold due to inherent structural problems. Presence of a risk premium can be largely attributed to existence of noise traders who base decisions on their sentiments or beliefs and not economic fundamentals. Even if the efficient market hypothesis was to hold, it argues that no strategy should allow investors and traders to make unusual returns except by taking excessive risks, which may not be feasible or permissible in practice. Investors have concerns of how to meet their liquidity obligations, the riskiness associated with investing in a particular currency, as well as the expected returns. For instance, if investing abroad is riskier that investing at home, investors must

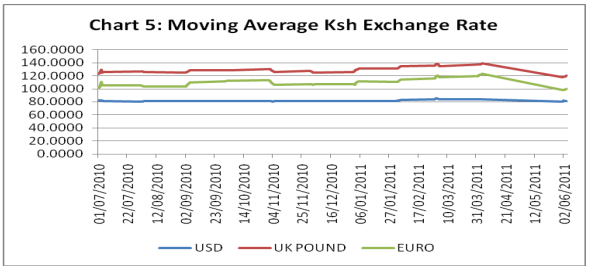
be compensated with a higher return to go abroad or they will not invest there. This implies that the expected excess return would be positive and equal to a risk premium, and hence the expected risk adjusted excess return would be equal to zero[7]. Consequently, exchange rates reflect information to the point where potential excess returns do not exceed the transaction costs of trading on that information such that no profits can be made by trading on publicly available information. In an efficient market, profit seekers trade in a way that causes prices to move instantly in response to new information, because any information that makes an asset appear likely to become more valuable in the future causes an immediate price rise today. This however depends on how contracts are made and concluded. For instance, in forward contracts – agreements set today for a trade of currencies in future – would seem to be an ideal indicator for future exchange rate. When financial capital is free to move, the forward rate equals the current rate adjusted by interest differential. If there were a way to make money with little risk from past prices, speculators would employ it until they bid away the money to be made. The efficient market hypothesis therefore imply that when markets are efficient, asset prices at any point in time represent the market's best guess, based on all currently available information, as well as its the fundamental determinants. Future price changes, adjusted for risk, will be close to unpredictable.

Efficient market hypothesis argues that a pattern such as depicted in Chart 1 and Chart 3 for the Kenya shilling/US dollar exchange rate is purely random since the trends occur by chance and are likely to reverse as to continue at any point, and therefore traders cannot exploit those trends to make money. However, various studies have documented evidence of profitable opportunities in foreign exchange markets (Sweeney, 1986 and Levich and Thomas, 1993) and supported by wide application of technical analysis, casting doubt on the efficient market hypothesis, which holds that no trading strategy should be able to consistently earn positive excess returns. Advocates of the efficiency markets hypothesis however maintain that the discovery of an apparently successful trading strategy may not indicate market inefficiency but, rather that the risk is not measured properly, confirming by implication, the significance of noise traders activities, and hence the observed volatility of the Kenya shilling exchange rate.

Noise Filtering

A number of indicators or filters have been developed to smooth the noise and identify the trend. The deviation from the general trend of the exchange rate can be attributed to the activities of noise traders. Any relatively short deviations from the trend are noise and therefore low pass filters based on moving averages are typically used (De Long *et al*, 1990). Such a filter is the simple moving average (SMA)[8], with the window size being - a 5 day week. We apply a simple moving average (SMA) filter method to construct chart 5.

Chart 5 show that a 5 day moving average exchange rate provides noise smoothing suggesting that much of the volatility in the Kenya shilling exchange rate is driven by activities of noise traders – or simply reflect noise.



Conclusion

The recent depreciation of the Kenya shilling cannot be fully explained by actual demand and supply of dollars in the foreign exchange market since there has not been any significant drop in supply or a marked increase in demand for dollars. In other words, the fundamentals are strong and therefore, the observed exchange rate trend has very little to do with domestic developments but neither can it be fully be attributed to developments in the international foreign exchange markets alone. The other possible factor at play is the activities of noise traders, which this article has shown to be significant in the foreign exchange market in Kenya.

To support this argument, it should be recognized that information is costly for traders to gather and analyze. Profits therefore may accrue to traders that have marginally better information than the rest of the market on where the exchange rate should be. The nature of trade activity in the Kenya foreign exchange market where specific volumes transacted are private information to traders, even though the market is highly competitive and under an automated trading system, lends support to existence of such information. In such a case, the exchange rate remains close enough to its fundamental value to prevent less informed people from profiting from the difference. It is also worth noting that empirical performance of exchange rate models remains unresolved. Different models tend to give different predictions, suggesting that fundamentals are not observed well enough to allow forecasting of exchange rates or that exchange rates are detached from fundamentals by (possible irrational) swings in expectations about future values of the exchange rate. In other words, contrary to the efficient markets hypothesis, swings in investor expectations may detach exchange rates from the fundamental value in the short run. Finally, economic models have generally not done well in explaining exchange rate behaviour. There is still no consensus on the appropriate set of fundamental factors to include in the exchange rate equation. Explaining exchange rate behaviour therefore remains an empirical issue, with economist examining various features of the market like sequential trading, asymmetric information, role of announcements, and the role of risk, among other issues that seem to be gaining renewed importance in the empirical literature.

News about macroeconomic variables is incorporated rapidly into exchange rates, although the relative importance of individual macroeconomic variables shifts over time. Economic fundamentals are important at longer horizons while short run deviations of exchange rates from their fundamentals can be attributed to excess speculation and institutional customer/ hedge fund manipulation.

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International Economic Outlook and Implications for Kenyan Economy

Introduction

The global financial crisis of 2007/2008 jolted the economic growth momentum that was being experienced in a number of countries. What started as a financial crisis affecting a few banks in the US quickly spread to all banks which had toxic assets (mortgage backed derivatives) before spreading to the financial system and eventually metamorphosing into one of the sharpest global economic downturn since the great economic depression of the 1930s. To counter the effects of the crisis, most countries resulted to fiscal and monetary policy measures but to varying degrees depending on the underlying dynamics in each economy. Consequently, recovery has been varied with some regions recovering faster than others. In this article we examine the impact of the global financial crisis, recovery so far, relative price movements and implications for the Kenyan economy.

The Impact

The first and second round effects of the crisis had their greatest impact among countries whose financial systems were well integrated into the world financial system. Contagion effects saw the spread of the crisis across assets, institutions and countries. The immediate outcome of the crisis was evidenced through exchange rate depreciation as currencies shifted to the safety of the dollar, rundown on official foreign reserves as countries attempted to stabilise their exchange rates, short term capital outflows as nervous investors sought higher returns, and dampening of stock market activities. The third round effects affected countries in developing regions which were initially spared the first and second round effects. These countries felt the effects through reduced demand for some of their exports as well as through reduced capital inflows in form of remittances, official foreign aid and direct foreign investment.

The ensuing economic downturn was felt across countries both developed and developing. Available data show that most advanced economies (USA, UK, Euro Zone) and some developing countries registered low and, in some cases, negative growth rates in 2009. The emerging market economies witnessed a slowdown in their growth momentum mainly due to a decline in demand for their exports by the advanced economies. African economies also registered less than optimal growth rates over the period. The global output grew by -0.6 percent with advanced economies growing by -3.2 percent, Euro zone by -4.1 percent while the US and the UK grew by -2.4 percent and -4.7 percent, respectively. Emerging and developing economies experienced slower growth which, however, remained positive.

At the start of the crisis, Kenya was already facing some serious exogenous shocks. The country was reeling from the effects of the post election violence of 2007/2008 that saw tourism, agriculture, transport and communications sectors severely affected. Persistent drought and shocks emanating from increases in world oil prices created a perfect recipe for economic recession. These effects were reflected in the growth outcome which saw real GDP drop from a high of 7.1 percent in 2007 to 1.7 percent in 2008 before recovering marginally to 2.6 percent in 2009. The economy is on a rapid recovery path and is projected to growth by 5 percent in 2010 and 5.7 percent in 2011.

The Recovery

Different countries resulted to both monetary and fiscal policies to counter the effects of the crisis – differing only on the extent of their usage – depending on the underlying dynamics in each individual economy. Broadly, countries adopted expansionary fiscal and monetary policies to prop up domestic demand while providing necessary liquidity to stimulate investment and growth. Fiscal policy instruments ranged from increased government spending to tax cuts while monetary policy instruments ranged from reserve requirements, Open Market Operations, to policy rates adjustments aimed at injecting liquidity into the financial system.

There is a mixed story on recovery between countries: slow recovery in advanced economies and robust recovery in emerging and developing economies. Quarterly growth statistics show weak recovery in the US, the UK and the Euro zone. Real output growth rates for quarters 1 and 2 of 2010 for US, UK and Euro zone were, respectively, 3.7, 0.4 and 0.8 percent and 1.7, 1.6 and 2.0 percent. Similar trends have been observed for quarters 3 and 4 where growth for US, UK, and Euro zone has been 2.6, 1.6 and 2.0 percent and 2.8, 1.7, and 2.0 percent, respectively. Besides lax financial regulatory regimes, these economies have relatively high budget deficits and unemployment levels – all of which have necessitated stringent austerity measures to address the problem. There have been fears that these austerity measures in the midst of fragile recovery could plunge these economies back to recession thereby threatening quicker recovery in developing countries.

As for the emerging economies of Brazil, Russia, India and China (BRICs), growth remains strong. This has continued to support recovery in the advanced and developing economies through strong demand for their imports and capital inflows. These countries were affected by the global financial crisis mainly through capital inflows (hot money) from the advanced economies as investors sought higher returns for their investments. To prevent appreciation of their currencies and emergence of inflationary pressures, some of these countries have embarked on policy measures aimed at cooling down their economies. As a result, growth in these countries is projected to slightly decelerate in the medium term.

Although there was slower than expected growth in the EAC and other regional economies, real GDP growth remained positive over the crisis period and recovery has been relatively robust. As the world economic output improves, regional economies are bound to benefit from increased demand for their exports, tourist arrivals, and capital inflows.

It is apparent that the nature and depth of the crisis informed the nature and scope of policy response to the crisis. This might explain the differential speeds of recovery across countries. What is clear, however, is that while providing liquidity and offering fiscal stimulus can and has stimulated growth in the short run, it has potential adverse effects in the long run if

the process is not well managed. For instance, excess liquidity may generate inflationary pressures which may require central banks to engage in mop up exercises which in turn could jerk up interest rates. Similarly, sustainability of fiscal stimulus could be an issue in the long term as most of the government spending is through either domestic or external borrowing or both which would require repayment.

The resilience of the Kenyan economy was tested and proven when it weathered all the internal and external shocks mentioned earlier. Policy actions by the Government and the Central Bank through fiscal stimulus; accommodative monetary policy and sound macroeconomic management have laid a strong foundation for accelerated recovery. Regional integration efforts including the coming into force of the EAC common market protocol in July 2010 and the promulgation of a new constitutional dispensation in August 2010 are expected to generate more trade, investment and economic growth within Kenya and the region. Being integrated into global financial system, the Kenyan economy is also expected to benefit from global economic recovery.

The Global Economic Outlook

The global economic outlook for 2010 and 2011 is mixed with continued weak recovery in advanced economies and strong growth in emerging and developing economies. There is continued slow recovery in the US, UK, and Euro zone which is projected to continue into 2011. High unemployment and unsustainably high fiscal deficits remain a problem for these countries. The US is currently implementing a second round of monetary easing aimed at lowering long term interest rates, boosting exports and stimulating private investment and consumption. Recovery in the Euro zone remains sluggish with Germany and France anchoring most of the growth in the region. Most of Europe is going through stringent fiscal consolidation aimed at addressing the problem of high fiscal deficit.

Sub-Saharan Africa is projected to grow by 5.0 percent in 2010 and 5.5 percent in 2011. The strong recovery is explained by, *inter alia*, high demand for African raw materials especially by China, high commodity prices, increased FDI flows as well as pursuance of sound macroeconomic policy environment. To mitigate against the third round effect of the crisis, a number of countries within the region followed similar policy responses of accommodative monetary policy to enhance liquidity and an expansionary fiscal policy to stimulate investment and growth.

The Relative Price Movements

Inflation, interest, and exchange rates in both advanced and developing countries have remained low and stable creating a supportive macroeconomic environment necessary for reducing cost of doing business and enhancing investment, economic growth and job creation. Some of the factors responsible for the low global inflation include: well-anchored inflation expectations by central banks and adequate food supply especially in developing countries. Recent inflation statistics, however, show emergence of inflationary pressures in China, India, Brazil, US and UK due to, among other things, rising world crude oil prices, food prices and emergence of unfavourable weather conditions in some SSA countries but remain largely within policy respective targets.

Advanced economies have adjusted their policy rates to very low levels (less than 1 percent) e.g. 0.5 percent (UK), 0.75 percent (US) and 1 percent (ECB) to induce low long term interest rates and hence investment. Regional economies have also adjusted downwards their policy rates but not to the levels in advanced economies e.g. Kenya (5.75 percent), South Africa (6 percent), Uganda (8.8 percent) and Tanzania (6.5 percent). Lowering of policy rates has achieved its objective of inducing downward adjustments of short term interest rates. However, due to default risks, industry inefficiencies and high cost of doing business, commercial banks in the region have not significantly lowered their lending rates. Holding such factors as credit risks and cost of doing business constant, the interest rates differential between the advanced and regional economies should attract investments to the latter economies.

The Kenyan economy stands to gain from not only expansion in private sector credit and investment but also from capital inflows from the advanced economies on account of interest rates differential between Kenya and some of the advanced and emerging economies where interest rates are much lower. The exchange rate between Kenyan shilling and trading partners' currencies has been stable mainly driven by economic fundamentals and developments in the major international currencies. At the global level, there is concern on the slow pace of appreciation of the Chinese Yuan, which, according to some analysts, is hurting US and European exports to China, a claim that China is disputing arguing that any rapid appreciation of the Yuan would hurt the world economy and that it is the loose monetary policy being pursued by the Fed that is causing instability in the global economy and not the Yuan.

Changes in relative prices in exchange rate changes can lead to shifting of resources in favour of exports goods for countries with depreciating currencies at the expense of export goods in countries with appreciating currencies. It is in this light that most of the advanced economies, the IMF and the G20 have been advocating for re-balancing of the global economy by calling upon countries with trade surpluses such as China to allow their currencies to appreciate so as to dampen their exports in order to stimulate domestic demand. Likewise, trade deficit countries (US, UK and others) be allowed to let their currencies depreciate to stimulate exports while dampening domestic demand.

Risks to Global recovery

Threats to global economic recovery include the weak recovery and high and rising unemployment in USA, UK and the Euro zone. Concerns of overheating in emerging economies especially China, Brazil and India could also pose a threat to global economic recovery if appropriate remedial measures are not taken on time. In view of this threat, the Chinese government has taken appropriate steps to dampen the threat by controlling housing mortgages, slowing down in government investment, restricting one apartment per family and imposing property tax. Other emerging economies have also taken measures to address the problem by imposing taxes on capital inflows and other forms of capital controls.

Another threat could come from potential currency 'wars' in which countries systematically devalue/undervalue their currencies as a way of boosting exports. Competitive devaluation has the potential of shifting resources to the export sector at the expense of other sectors of the economy resulting in counterproductive/wasteful internal and external macroeconomic imbalances. Resultant exchange rate volatilities could also distort interest rate structure in the domestic economy thereby tampering with economic recovery.

Implications for the Kenyan Economy

The Kenyan economy continues to demonstrate its resilience with all the major economic indicators pointing to a stronger recovery in 2010, 2011 and later years. Quarter 1 of 2010 registered a real GDP growth of 4.4 percent compared with 1.4

percent in 2008 and 5.6 percent in 2009. Quarter 2 growth was 5.4 percent compared with 2.4 percent and 1.1 percent growth in a similar period of 2008 and 2009 respectively. Quarter 3 of 2010 registered an impressive growth of 6.1 percent which confirms the economy is on course to realise the 5 percent forecast for 2010. This positive economic outlook can be attributed to good policy environment. The accommodative monetary policy pursued by the Bank resulted in adequate liquidity in the financial system and lowering of interest rates which in turn led to increased credit to the private sector. On the fiscal side, stimulus projects in addition to enhanced infrastructural public investments have played and continue to play a vital role in facilitating economic recovery. Higher interest rates in Kenya compared to those pertaining in western and most of the emerging economies is likely to attract private capital inflows.

Improved tourist arrivals even from countries severely hit by the global financial crisis, low and stable inflation in Kenya's trading partner states, low and stable interest rates, ongoing heavy investment in infrastructure (especially in energy generation, ICT and roads network), enactment of a new constitution, EAC integration, and stable fundamentals-driven exchange rate are pointers to a bright future for the Kenyan economy.These factors constitute a significant source of growth and give the Kenya economy confidence for future growth and prosperity.

Kenya, like many other countries which have pursued expansionary economic policies as a way of addressing the global financial crisis, is likely to face similar problems of excess liquidity, inflationary pressures and high debt burden in the medium to long term. This calls for a planned phasing out of current stimulus packages to maintain a balance between economic growth, inflation, and high debt burden. In addition, the problems discussed earlier of short term inflows, excess liquidity, inflationary pressure, and high debt burden could pose a threat to growth outlook in the medium to long term. Another threat may emanate from continued world oil increases being experienced since the advent of political unrests in North African and Middle East from January 2011.

In conclusion, one can say that with the prevailing sound macroeconomic environment, recovery in major sectors of the economy including agriculture, tourism, building and construction coupled with strong growth among Kenya's trading partners and regional integration efforts, the stage is set for the economy to achieve its growth trajectory of 10 percent per year as envisaged in the Vision 2030 in the medium term. Despite recent increases in fuel pump prices, inflationary pressure could be muted by ongoing investment in energy generation, enhanced crude oil importation, and anticipated long rains.

International Currency Wars and their Implications for the Kenyan Economy

Introduction

The 2007-2009 global financial crisis has rekindled memories of the 1930s great depression and its aftermath: currency wars. The only difference between then and now is that international trade was not as integrated as it is today. Neither was the financial system as sophisticated as it is today. Similarly, policy tools and motives for waging the currency war are different now than they were then. One similarity though is that in both episodes, the potential to distort global trade is immense. Both the combatants and the neutrals in the war are directly or indirectly affected by the wars. This article looks at the meaning of currency war, its history, current situation, and implications for Kenyan/African economy.

A currency war simply refers to competitive devaluation or depreciation of a domestic currency relative to other currencies with a view to boosting the domestic economy's exports. During the Napoleonic wars, currency wars were aimed at protecting domestic industries through imposition of trade tariffs. In the 19930s, the main motive of currency wars was to solve the massive unemployment brought about by the great depression of the time. The impact of these wars then was reduction in world trade. The Bretton Woods era covering the period 1944-1971 saw relative stability of exchange rates between countries – a fete attributed to surveillance of the Bretton woods institutions and also due to the fact that countries were rapidly growing, creating no incentive to engage in competitive currency devaluations. This trend continued for most of 1970s and 1980s during which period countries focused on promoting export-led growth. However, after the 1997 Asian financial crisis, Asian countries began to accumulate foreign exchange reserves to cushion against financial crises. This continued until the 2007-2009 global financial crisis that has led to a contraction of the world economy, massive unemployment, high fiscal deficits and widening trade deficits in advanced economies..

The current currency war debate is premised on the need for advanced economies especially the USA to stimulate aggregate demand through quantitative easing or, simply put, through printing of money to buy government bonds. This has led to capital inflows to emerging economies. As a result, emerging economies have responded through currency interventions and capital controls to mitigate against destabilising capital flows. Thus the currency war debate has been triggered by quantitative easing in advanced economies and China's apparently undervalued currency.

Current Situation

The 2007-2009 global financial crisis started with subprime mortgage lending in US which quickly spread to European banks holding toxics assets before spreading to other economies via exchange rate. All these factors combined created one of the sharpest economic downturn since the great depression of 1930s. The crisis has created two categories of economies: trade deficits countries exemplified by the US, UK and most of Euro zone, and trade surplus countries exemplified by China, Singapore, South Korea and Hong Kong.

It is important to mention that the trade imbalance between the US and most advanced economies on the one hand and emerging markets on the other existed before the financial crisis. The crisis only enhanced it. Deficit countries are suffering from low exports and relatively higher imports resulting in widening of their current accounts while the opposite is the case for the surplus countries. The deficit countries have pursued policies aimed at promoting exports to accelerate economic recovery while surplus countries want to maintain their competitive edge by keeping their currencies undervalued.

At the onset of the crisis, the US dollar appreciated as most investors converted their currencies into dollars seen as a stable currency. In theory and practice, an appreciating currency dampens a country's exports at the expense of imports. Theory holds that for a fast growing economy like China, its currency should appreciate due to capital inflows. However, this does not seem to be the case with China. The Beijing government sterilises the dollars by buying them from domestic exporters and then sells government bonds to prevent the Chinese Yuan from rising. Most advanced economies are not comfortable with this strategy. It is for this reason that the US and other advanced economies have put pressure on China to allow the Yuan to appreciate as a way of rebalancing the world economy. On her part, China argues that doing so could hurt global trade and points an accusing finger at the US for pursuing loose monetary policy and terming it distortionary to the world economy.

In reaction, the US House of Representative passed a law in September 2010 allowing American firms to impose tariffs on goods from countries whose currencies are undervalued such as China. It was also feared that emerging markets could respond to capital inflows from advanced economies by either buying foreign exchange inflows or imposing taxes on foreign exchange inflows in order to protect their currencies from appreciating.

Although there has been talk of currency wars, this has not materialised. It was the fear that if America and a few of the advanced economies depreciated their currencies, it could trigger retaliatory competitive devaluations by other countries, particularly the emerging economies.

Currency wars and Implication for the Kenyan Economy

A currency war between China, US and European economies could adversely affect the global economy. Kenya and indeed Africa is not directly involved in these wars but could be affected by its aftermath. For instance, if these countries depreciate their currencies, the Kenyan shilling would be affected to the extent that the movement of the Kenyan shilling is influenced by movement of major international currencies. In addition, competitive devaluations by way of quantitative easing or outright manipulation of currencies lowers domestic interest rates relative to world interest rates thereby inducing capital outflows from the domestic economy as investors look for countries with higher returns. So Kenya could be affected indirectly through short term capital inflows

(hot money) from advanced economies which could cause volatility of the shilling exchange rate leading to economic distortions through changes in relative prices.

In summary, currency wars that lead to a surge in capital inflows causing the exchange rate to appreciate have an impact on aggregate demand. An appreciating currency tends to boost imports widening the trade deficit until the current account deficit reaches uncomfortable levels. If the economy were operating at a level close to potential output, the boost in consumption from the appreciating exchange rate may also lead to a build up of inflationary pressures. Evidence so far does not indicate any tendency for countries to engage in currency wars. We have not seen serious interventions by emerging and developing countries neither have we seen the anti-Chinese law which was passed by the House of Representative taking effect as was feared. So far the law has not received presidential assent to make it effective.

Policy Conclusions

Currency wars have never been known to solve economic problems of countries. Taking the case of US versus China, one can conclude that whether or not the Chinese Yuan appreciates, it may not solve America's trade deficit problem. In retrospect, Chinese Yuan has appreciated against the US dollar by 21 percent between 2005 and 2008, yet US trade deficit has persisted. Similarly, in 1985, US pressurised Japan to allow appreciation of the Yen by 50 percent, this too did not solve the then large US trade deficit with Japan. There are other factors that make Chinese exports more competitive than those of US such as low wages, good infrastructure, and policies that support private business. Comprehensive structural and labour market reforms may be what America and other advanced countries require more than currency appreciation of competing economies.

Needless to say, policy dilemmas do exist. Fiscal austerity measures coupled with slow recovery in the West may lead to more need for currency depreciation (low competitiveness) or imposing restrictions on capital inflows from the advanced economies by emerging market economies.

As advocated by the IMF and the G20 countries, there is need for rebalancing of world demand by shifting domestic demand from advanced economies to emerging economies. Although allowing appreciation of emerging markets' currencies may appear painful, allowing deflation in advanced economies could be more painful to both developed and developing economies.

Kenya and indeed Africa should remain focused on sustaining sound fiscal and monetary policies and creating other incentives to support private sector investment and growth.

Appropriate Monetary Policy Response to Adverse Supply Shocks

Monetary policy is the strategic actions taken by a monetary authority to manage the supply of money with a view to achieving specific economic goals. Monetary policy in Kenya ultimately seeks to promote economic well being of the country's citizens by ensuring high and sustainable non-inflationary rate of economic growth. This is done by managing the expansion of money supply and domestic credit in such a manner that only the money needed to support productive economic activities is provided without exerting undue pressure on prices of goods and services.

The Kenyan economy is currently facing a number of adverse supply shocks, including drought and oil prices hikes. First Kenya has experienced dry weather conditions starting from late 2010, with most areas receiving less than normal rainfall. Currently the Meteorology Department predicts less than normal rains during the long rains season in 2011. This has implications on prices of food and energy. Specifically, prices of food and non-alcoholic beverages basket, which constitute 36% of the Consumer Price Index (CPI), edged up from 5.63% in October 2010 to 9.82% in February, 2010. The prices of housing, Water, Electricity and Other fuels basket, which constitutes 18.3% of the CPI, rose from 2.1% in October 2010 to 5.3% in February 2011.

Second, the Murban crude oil prices have risen sharply from US $ 75.9 per barrel in September 2010 to US $ 106.5 per barrel in February 2011 due to political disturbances in Middle East and North Africa (MENA) region. The pressure from the crude oil prices has been so strong that the Energy Regulatory Commission (ERC), which had earlier come up with oil pump pricing formula, has sanctioned two upward price adjustments. This has caused the prices of transport basket, which constitutes 9.8% of the CPI, to steadily rise from 4.98% in October 2010 to 13.1% in February 2011. Additionally, the oil price shock could put brakes on the recovery of the economies buying Kenyan goods and services, further dampening the country's export prospects. So far the drought and oil prices, among others, have put pressure on the exchange rate to weaken further fanning inflationary pressures as the import bill skyrocket. Overall inflation has risen from 3.2% in October 2010 to 6.54% in February 2011.

The critical question that is in the minds of many Kenyans now is how should the Central Bank of Kenya (CBK) respond? Should CBK's monetary policy be accommodative and finance the higher level of prices or should it be contractionary to offset the inflationary effects of such disturbances. The debate on the appropriate monetary policy response to the adverse supply shock in Kenya is not new. As early as the first decade of the nineteenth century, David Ricardo (1772-1823) and Henry Thornton (1760-1815), the preeminent monetary theorists of the English classical school analysed harvest failures in England. The sharp increase in the oil prices during the 1973-74 re-ignited the debate world-wide and has occupied the attention of macroeconomists for many decades.

Back to Kenya, the current supply shocks are neither the first nor the worst to hit the economy. Kenya has in the past experienced droughts, floods and landslides, some of which were declared national disasters while others simply passed as localized problems. For instance the country has in the past recorded deficits of food due to drought resulting from shortfall in rainfall in 1928, 1933-34, 1937, 1939, 1942-44, 1947, 1951, 1952-55, 1957-58, 1974-75, 1977, 1980, 1983-84, 1991-92, 1995-96, 1999-2000, 2004, 2006, and 2009. Floods were also experienced in 1982, 1985, 1997/98, and 2002, among others. Similarly, since petroleum fuels constitute the main source of commercial energy in Kenya, hikes in crude oil prices are major supply shocks. Thus the oil price hikes such as 1973-74 and 1979 have major effects on the Kenya economy.

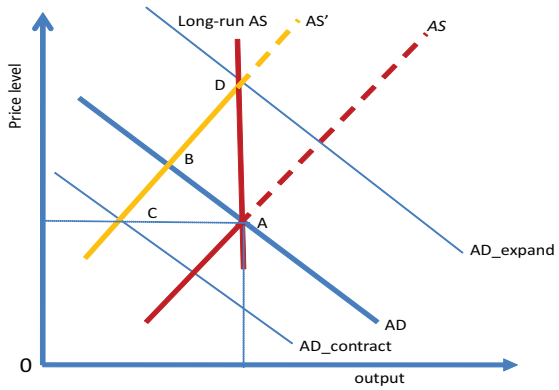
CBK has two principal mandates, to stabilize prices and ensure financial stability. In addition, it has to support government in its growth and employment objective. Thus policy response to adverse supply shocks should focus on these objectives.

There are three possible monetary policy responses to adverse supply shocks: hold money constant, tight monetary policy and monetary expansion. Figure 1 below illustrates the issue using an Aggregate Demand (AD) and Aggregate Supply (AS) framework. From AD/AS framework, there are two negative shocks. A negative shock to AS through say higher commodity prices such as oil or drought. This shock reduces GDP growth and raises the price level. There is also a negative AD shock due to say reduction in government expenditure which acts to lower real GDP growth but also reduces the prices. The horizontal axis measures the aggregate output while the vertical axis shows price level. The intersection of the short-run AS and AD gives the equilibrium price level and equilibrium output level. The long-run AS is vertical, since it is not possible to expand output in the short-run unless there is excess capacity. Point A denotes initial equilibrium i.e. intersection of aggregate supply (AS) and aggregate demand (AD). When there is an adverse supply shock (such as drought or oil price hike), the aggregate supply curve shifts to the left and becomes AS' and the new equilibrium is point B. This causes a rise in the general prices (inflation), a situation we are witnessing in Kenya today.

The first option for the CBK is to do nothing and rely on the central government to more directly act on price pressures from the supply side as well as self-reversal of the shock. This will move the supply curve back to AS. This is the solution advocated by Thornton in the first decade of the nineteenth century. In support of this approach, Fischer (1985) argues that as long as there is no real wage resistance by workers, supply shocks by themselves should require no monetary responses. Modern central bankers, including CBK, advocate for this solution for the direct or first-round effects of adverse supply shocks. CBK's framework allows temporary supply

shocks to be largely ignored as long as they do not feed into inflation expectation. The credibility that CBK has established means that temporary supply shocks typically do not feed into inflation expectation. Responding to temporary supply shocks can turn them into something that is destabilizing for the aggregate output.

Figure 1: Possible Monetary Policy Responses to Adverse Supply Shocks



The second option for the CBK is to assume that the supply shock is equivalent to a demand shock and neutralize the initial impact on inflation using contractionary monetary policy. Contractionary monetary policy will shift the demand curve downwards from AD to AD_contract. Equilibrium moves to point C, where prices are stabilized but at the cost of substantial reduction in output. Practically the reduction in output will come as a result of substantial increase in the cost of credit. This policy response was suggested by David Ricardo (Humphrey, 1990). Modern central banks advocated for this solution when supply shocks from rising food and energy prices continue over a longer period, contributing to indirect or second-round effects, which affect the wage and price-setting behavior of businesses and households. Additionally, this option is appropriate when the supply shocks unanchor inflation expectations over the policy horizon. In this situation the central bank takes decisive action and strong anti-inflation pronouncements.

The final option is for CBK to use expansionary monetary policy, which would shift the demand curve upwards from AD to AD_expand. Equilibrium would be established at point D, where output would be stabilized at its pre-shock levels but at the cost of further rise in price. This policy option is appropriate with negative demand shock, which is the case during economic recession that is long and deep. In this case consumers stop spending as much as they used to; production declines, leading firms to lay off workers and stop investing in new capacity and the appetite for the country's exports by foreigners plummet. This was indeed the appropriate policy response to the situation Kenya found herself in 2008 with multiple shocks (global financial crisis, post-election violence, drought and dramatic increase in world food and oil prices). CBK pursued an accommodative monetary policy to help cushion the economy from the negative effects of the global financial crisis. The risk with this option in the case of supply shocks is that by pursuing an expansionary monetary policy usually leads to acceleration in inflation, which in turn requires a far more restrictive monetary policy in the subsequent periods, leading to a relatively significant deceleration in economic growth.

In summary, adverse supply shocks pose a major challenge to monetary policy. In particular, adverse supply shocks reduce output and increase prices at the same time, rendering demand-management-based policy ineffective. Inappropriate monetary policy response may have far-reaching negative consequences for the economy. An attempt to fully neutralize the impact of the supply shock may lead to an excessive loss in output as the supply shock itself has a negative effect on demand and investment. On the other hand, an attempt to fully accommodate a supply shock by pursuing an expansionary monetary policy may lead to higher inflation. The appropriate response is that if the supply shocks are transitory and/or limited in scale, they do not require an immediate action by the CBK. If the shocks are strong, which may bring about a permanent rise in inflation expectation, and, in turn a further increase in inflation due to building wage pressure, CBK should contain secondary effects of the supply shock (second-round effects). This requires existence of core inflation indices, which allow distinguishing, at least roughly, temporary changes in inflation pressure from the permanent ones. The non-tradeables index, which is currently used as a proxy for the underlying/core inflation, is subject to so many impurities to effectively perform this function.

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A Microanalysis of Commercial Banks Interest Rates in Kenya

One of the most popular and common criticism directed at Central Bank of Kenya (CBK) is that it has been unable to force commercial banks (banks) to reduce their lending rates. The public complains that while banks offer low rates on savings, they are charging high lending rates. As such the public wants the Central Bank of Kenya to force banks to lower lending rates so that they can cheaply borrow. This makes perfect sense to a layman, and if it does so why can't the Bank be on the side of the mwanainchi and public opinion and force banks to do so? The media have not been left behind in pointing out the Bank's "ineffective" monetary policy which has no relevance for a common mwanainchi, chiding the Bank for basing its policy on a baseless policy rate which influences nothing. This Brief, aims to correct these perceptions and to show their incorrectness.

Market based philosophy of economic governance:

Before 1990s the policy paradigm of setting prices by the government was introduced. The policy regime at that time was that Government could fix the prices of essential commodities. The budget speeches were forums for the Minister for Finance to announce through Gazette Notices the price of bread, milk, paraffin, maize flour, cement and matches and other essential goods and services. Financial services were also controlled by the Government as it used to set the floor and ceiling on the lending and savings rates that banks could charge its customers. In addition, it was the role of the Government to guide the banks on which sectors, to extend credit.

This system of economic governance led to distortions in the market and lack of investment by the private sector. Government mechanisms of credit allocation led to lack of innovation and misallocation of resources. Control of interest rates led to financial repression, high non-performing loans, lack of credit to the *mwanainchi* as available credit had to be rationed. Because interest rates were being set by the state, investment decisions were distorted and as such low quality projects met the threshold while profitable projects were crowded out under this form of economic governance.

With the economic liberalisations of the 1990s, the government decontrolled prices, hence business enterprises could now price their commodities based on their cost structure. Those firms whose goods were expensive were edged out by those who could produce efficiently. Financial sector liberalisation removed the government from directing which sectors could get credit.

As a result of interest rate liberalisation, non performing loans have declined, banks are availing more credit to the private sector, and ordinary *wanainchi* who could not have access to loans during the controlled regime can now borrow if they meet the bank's requirements. The role of CBK in a liberalised era is to ensure that the environment is conducive enough for banks to provide adequate private sector credit to promote investment and growth. CBK can only do that through macroeconomic stability and fosturing a proper regulatory environment. Macroeconomic stability ensures the stability of prices while proper regulatory environment ensures strong and stable banks that safeguard the deposits of Kenyans.

Monetary Policy Effectiveness

The effectiveness and success of monetary policy is predicated on the ability of the Central Bank of Kenya controlling the money supply in the economy. Like any other commodity in the market, price is a function of demand and supply. In the money market, price of money is the interest rate. It is determined by the demand for money by economic agents and supply of money (mainly by CBK). When the demand for money increases, it puts pressure on interest rates, hence CBK can inject more liquidity in the market to ease pressure on interest rates. When rates are too low, they generate inflationary pressure and CBK can mop-up (reduce) liquidity in the market which then adds pressure on interest rates.

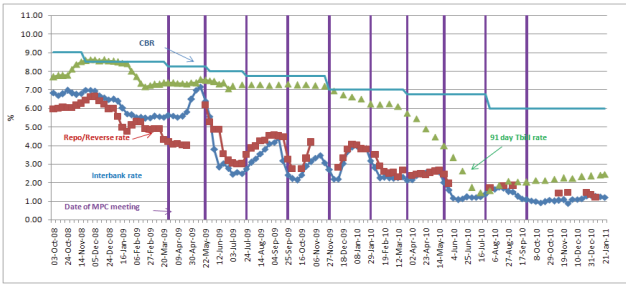
However, the interactions between CBK and the public takes place on the shorter end of the market. It does not lend to individuals or private firms but to the Government and commercial banks according to set guidelines. Lending to Government is restricted to 5 percent of the latest audited tax revenues. Lending to banks is secured and collateralized mainly in the form of Government securities. It lends to commercial banks either through the overnight window at the Central Bank Rate (CBR) rate or the Repurchase Agreement (Repo) market for 7 days.

The activity in the repo market directly affects activity in the interbank markets. Interbank market is where banks borrow from each other in the short term mainly overnight or up to 3 days. When liquidity in the interbank is in short supply, interbank rates go up. If direction and magnitude of movements in rates in the interbank is not consistent with monetary policy stance, then CBK influences activity in the interbank by injecting or mopping up funds in the Repo market. Being a source of additional liquidity in the shorter end of the market, the pressure in the interbank market will be affected by activity in Repo market with rates going up (down) in the interbank if the Bank mops-up (injects) liquidity into the system.

Since it can only influence commercial bank activity through its Repo window, it signals monetary policy stance by the direction and magnitude of the CBR changes which is operationalised through the Repo rate. An increase in CBR signals tighter monetary stance mainly aimed at curbing inflation and inflation expectations. A reduction of CBR signals accommodative monetary stance mainly to support economic growth. The

Bank ensures that CBR decisions are operationalised through the Repo window. Movements in the CBR are supposed to coordinate other short term rates (see Figure 1 for evidence)

Figure 1: Kenya; Policy Rates Coordinating Short Term Rates - October 2008 to January 2011



CBK coordinated efforts to bring short term rates down by both cutting the CBR policy rate and injecting liquidity through the repo market into the banking system. This helped bring down short term rates (interbank and 91 day Treasury bill rates). Specifically, the injection of liquidity into the market, and the lowering of CBR by 325 basis points between December 2008 and January 2011 coordinated the downward revisions of short term rates in the market as illustrated in Figure 1. Provision of liquidity to the banking sector when there is uncertainty in the credit market proved to be helpful in stabilizing financial markets facing liquidity pressures and providing confidence to the market during the global financial crisis.

Transmission Mechanism

If monetary policy signals coordinate short term rates how come they are not transmitted to longer term rates like lending rates? Commercial banks price their products based on several factors that include; cost of funds, credit risk, administrative costs, Treasury bill rate, competition, profit margin, interest rate risks, CBR, economic growth, liquidity risk, inflation and country risk are listed. In an ideal environment and depending on the weight of the factor in determining the lending rate, any movement of any of these factors should lead to adjustments in lending rates. For example if inflation and Treasury bill rates are significant determinants of lending rates, banks should adjust their rates when inflation and treasury bills rates changes – in whatever direction. That is, assuming inflation contributes 10 percent weight in lending rates, then lending rates ought to drop by 5 percent of their original level if inflation drops by 50 percent, holding other factors constant.

As can be observed, the Central Bank of Kenya can only influence just but a few of factors which determine the lending rates e.g. costs of funds (by influencing the repo and interbank thus influencing the return on cash), treasury bill rate (that determines alternative assets return), the CBR (reflects the monetary policy stance central bank is pursuing this will influence the short term rates and in turn the lending rates), and inflation - the purchasing power of money. The macroeconomic environment determine some other factors like credit risk, competition, profit margin, interest rate risks, economic growth, liquidity risk, and country risk. Other factors like administrative costs and profit margin are banks' prerogatives. As a result of these issues, the transmission mechanism of monetary policy from short term rates to the lending rates depends on so many factors some of which the CBK may not have control.

What is the experience?

Following the reduction of CBR consistently from 2008 to January 2011, Interbank, Treasury bill rates and other securities, lending rates responded to this downward movement, showing that the CBR coondinated movements of these rates. All banks have reduced their base lending rates since May 2010. The biggest contributor to this reduction was the large and medium banks category that reduced their base lending rates from by 52 and 33 basis points, from 14.28 in May to 13.76, and from 14.75 to 14.42 respectively, in December 2010. The small banks decreased their base lending rates marginally by 12 basis points from May to December 2010. On average, between May and December 2010, banks reduced their base lending rates by 35 basis points and their average lending rates by 57 basis points. Average lending rates and base rates have responded to MPC signals with declines between May and December 2010. Tables 1 shows the movement of the base rate and the lending rates for commercial banks in the year 2010.

Table 1 movement of base and lending rates May – December 2010

Category of bank Size	Average Base Rate					Average Lending Rate				
	May-10	Sep-10	Nov-10	Dec-10	changes	May-10	Sep-10	Nov-10	Dec-10	changes
All Banks	14.59	14.3	14.24	14.24	-0.35	14.44	13.98	13.95	13.87	-0.57
Small Banks	15.02	15.1	14.9	14.9	-0.12	14.85	14.43	15.12	14.62	-0.23
Med Banks	14.75	14.42	14.42	14.42	-0.33	15.02	13.57	14.74	13.86	-1.16
Large Banks	14.28	13.79	13.76	13.76	-0.52	14.77	14.41	14.82	14.37	-0.4

Table 2: Category of Lending by Market Segment

Category of bank Size	May-10			Dec-10			Change (December /May 2010)		
	Consumer	Business	corporate	Consumer	Business	corporate	Consumer	Business	corporate
All Banks	15.25	15.38	13.28	14.36	15.08	13.19	-0.89	-0.3	-0.09
Small Banks	13.9	16.89	14.56	13.67	15.87	14.32	-0.23	-1.02	-0.24
Med Size Banks	14.58	15	14.51	13.96	14.72	12.91	-0.62	-0.28	-1.6
Large Banks	15.09	15.81	13.98	14.92	15.14	13.03	-0.17	-0.67	-0.95

Table 2 shows shows that medium banks had the greatest reduction in their lending rates, followed by large banks while the small banks were less consistent in May and December 2010. Medium banks reduced their lending rates across all market segments, especially the consumer and corporate lsegment implying a declining credit risk. Large banks also reduced their lending rates across all market segments, particularly to the business sector.