

FACTORS LEADING TO SLOW ADOPTION OF DERIVATIVES USE IN KENYA: A CASE OF COMMERCIAL BANKS IN KENYA

Ithai Julius Kamenchu

Meru University of Science & Technology

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ABSTRACT

The innovation in financial risk management has led to development of derivatives markets in most of the developed economies. Use of these derivatives aids a firm in hedging and speculation which further impacts on the shareholders wealth maximization. Currently, there is no organized exchange for financial derivatives in Kenya. However, it is believed that over the counter (OTC) trading is engaged by many firms. This study targeted Commercial Banks in Kenya. A census survey was conducted on the 45 banks which were registered by Central Bank as commercial banks. Out of the 45 questionnaires administered, 33 of them were received and analyzed for results. Five factors were used to analyze the study: Regulatory framework, Trade liberation, Savings/investment ratio, Macro-economic factors and Technological factors. Data collected was used to develop a regression model using SPSS. From the findings, over80% of financial institutions in Kenya use financial derivatives for hedging, speculation or both. The main factors hindering use of derivatives include legal framework and trade liberation. This study was limited to Kenyan Commercial Banks further research should be conducted on non-financial firms to establish the findings.

Key Words: *derivatives markets, adoption of derivatives, commercial banks in Kenya*

Introduction

Corporate risk management is thought to be an important element of a firms overall business strategy. Recent financial disasters in financial and non-financial firms and in government agencies point up the need for various forms of risk management. Due to innovation in financial risk management, financial derivatives have been adopted mostly in the developed economies. This has led to rapid growth of derivatives markets globally. Derivatives are a financial instrument such as Swaps, futures and options that derives their value from an

underlying asset (for example, stocks, bonds, real property etc). Globalization of financial markets has enabled developing countries to get an experience on the utilization of these techniques.

According to Bouzouita and Young (1998), derivatives are important risk management tools. They allow investors to trade exposures, diversifying risk and reducing earnings volatility. The market in derivatives has grown dramatically over the last 15 years. Today derivatives have moved beyond the more familiar instruments used for managing interest rate, currency, commodity, equity and credit market risk to instruments used to mitigate risks such as catastrophe, pollution, electricity, weather and inflation (Berkman, 2002).

In the last twenty years, a number of studies have examined the risk management practice within financial companies. Studies report on the use of derivatives by financial firms include; Belk and Glaum (1990); Bodnar et al (1996); Fatemi and Glaure (2000). Another group of researchers has investigated the determinants of corporate hedging policies (Adedeji; and Baker, 2002; Berkman et al 2002).

Foreign exchange, interest rate and commodity derivatives are important means of managing the risks facing corporations. Finance theory indicates that hedging increases firm value if there are capital market imperfections such as expected costs of financial distress, expected taxes and other agency costs. Theoretical models of corporate risk management indicate that derivatives use increase with leverage size, the existence of tax losses, the proportion of shares held by directors and the payout ratio. The corporate use of derivatives decreases with interest coverage and liquidity (Foot et al, 1993). Greezy et al (1997) shows that firms with greater growth opportunities and tighter financial constraints are more likely to use currency derivatives. Firms with extensive foreign exchange rate exposure and economies of scale in hedging activities are more likely to use currency derivatives.

According to Howton and Perfect (1998), Swaps are the most often used interest rate contracts, and ,forwards and futures the most often used currency contracts. Nam (1998), on the other hand argues that firms with enhanced investment opportunity sets use derivatives more when they have relatively lower levels of cash. Their results show that firms can and do use derivatives as one strategy to maximize shareholders value. Nguyen and Faff (2002) argue that leverage size, and liquidity are important factors associated with the decision to use derivatives. According to Tuffano (1996) cash flow hedging strategies allow firms to avoid the dead weight of external financing by setting their internal cash flows equal to their investments needs. Guary (1999) holds that firms use derivatives to hedge and not to increase entity risk. Hashatter (2000) shows that companies with greater financial leverage price risks

move extensively. His results also show that larger companies, and companies whose production is located primarily in regions where prices have a high correlation with the prices on which exchange traded derivatives are based, are more likely to manage risks. Berkman et al (2002) show that size and leverage are the main explanatory variables for derivatives use in both industrial and mining companies in Australia.

The volatility of interest rate, currency, stock and bond returns and commodity prices have caused financial institutions to implement hedging techniques to manage their financial risks. Financial derivatives are essential in designing an effective hedging strategy. They represent an important source of revenues for financial institutions and speculators. This has led to an explosive growth in the trading of derivative securities and they represent trillions of dollars of transactions (Adelegan, 2009). Futures and options are now actively traded in many different exchanges. Many other derivative contracts are on the over-the-counter market.

At present there is no financial derivative exchange in Kenya. However, some derivative securities are being traded regularly in the OTC market. It is believed that the government will soon take initiatives to establish organized futures and options exchange as the derivative securities are expected to positively contribute to the development of financial system and capital market of the country. However, there are some controversies on the introduction of derivatives market in Kenya. It is questionable whether the basic factors such as the current economic status, maturity of the financial market, knowledge of the people etc are strong enough to go for such a move.

Problem statement

The use of derivatives in corporate risk management has grown rapidly in recent years, fueled in part by the success of the financial industry in creating a variety of over-the-counter (OTC) and exchange-traded products. Derivatives markets can facilitate the management of financial risk exposure, since they allow investors to unbundle and transfer risk. In principle, such markets could contribute to a more efficient allocation of capital and cross-border capital flow, create more opportunities for diversification of portfolios, facilitate risk transfer, price discovery, and more public information (Tsetsekos and Varangiz, 1997; Ilyina, 2004).

To tap the benefits derived from use of financial derivatives, several derivatives markets have been developed the world over, and relevant authorities set to oversee the activities taking place in such markets. Such markets are more common in developed economics like New York, Chicago, India, Canada and Thailand, and Warsaw (Poland). Use of financial

derivatives in these economies is commissioned by a legal body, the Securities and Exchange Commission's (SEC).

Empirical Review

A 1995 survey of major financial firms in United States of America (USA) revealed that at least 90% are using some form of financial engineering to manage interest rates, foreign exchange or commodity price risks. (Wharton, Chase, 1995). Banks, insurance firms, savings and loans firms are also active in derivatives markets. Although the types of risks confronting managers vary across industries, there is substantial commonality in the underlying rationale for the use of derivatives and the financial engineering techniques that are employed. South Africa's derivatives market, the only one in sub-Saharan Africa, (SSA)- was established in 1990, to further develop the financial system, enhance liquidity, manage risk and meet the challenges of globalization. Like any other emerging derivatives market, it stemmed primarily from the need to "self-insure" against volatile capital flows and manage financial risk associated with the high volatility of asset prices (Adelegan, 2009). The market is commissioned by Financial Securities Board (FSB) of South Africa. The Capital Markets Department (CMD) of FSB is responsible for the supervision of licensed exchanges, central securities depositories and clearing houses.

Grant and Marshall (1997) surveyed the largest UK companies between 1994 and 1995. The results of the survey show that derivatives are most commonly used to reduce the firm's cash flows. The result further indicated that swaps, forwards and options are commonly used to manage foreign exchange and interest rate risks. Firms seemed to be very aware of the need to quantify and price their derivative positions and in a number of cases; they were using sophisticated valuation procedures.

Grant and Marshall did recognize that they had a smaller sample than the US studies and that the US studies contained smaller firms that were not likely to use derivatives. They did not however, examine whether the larger or the smaller of their sample responded. Joseph and Hewins (1997) did examine the motives behind corporate hedging in their questionnaire survey on UK multinational corporations. The two claimed that the primary object for corporate hedging was cash flows. The hedging motives appear to be influenced by the management's perceptions of the stakeholder's attitudes to risk and financial market behaviors. They also found relatively weak emphasis on the financial distress motive.

Bodnar et al (1998) surveyed 530 US financial derivatives. They found that large firms tend to use over the counter (OTC) products, while small firms tend to use a mixture of OTC and

exchange –traded products. It was found out that 80 percent of the firms used derivatives to hedge firm commitments, and 44 percent of the firms use derivatives to hedge, the balance sheet.

Research Design

The cross-sectional comparative study was adopted to compare the investigation from the perspectives of commercial banks in Kenya. This research was only being based in Nairobi. A census was conducted with one respondent from each institution preferably the financial manager or his appointee. Descriptive and inferential statistics were used to summarize and present the findings. The respondents in this study were selected financial managers of selected commercial banks in Nairobi. The target population consisted of 45 commercial banks within Nairobi. This is the total number of registered commercial banks, (CBK, 2008/2009), which was therefore considered appropriate for providing a focal point for the study in the region. The population was divided into three strata i.e. government and state corporation shareholding, foreign owned commercial banks, and local but privately owned banks.

Data collection instruments

To achieve the objectives of the study, primary data was sourced by way of structured questionnaires which were administered to the respondent's. The questionnaire were delivered to the respondents business premises and further a copy was emailed.

Data collection procedures

The questionnaires were delivered to the business premises of the respondents. The respondents were required to fill in the questionnaires independently. With the help of data collection assistants, all the questionnaires were picked from the respondents offices and data analyzed.

Interpretation of the Results

Growth of derivatives

By holding the factors that the study considered to be causing the slow adoption of derivative markets by commercial banks in Kenya i.e. Legal framework (X_1), Trade liberation (X_2),

Savings and Investments (X_3), Macro Economic Variables (X_4), and Level of Market Development (X_5) constant then, Growth of derivatives (Y) will be at $\beta_0 = 2.744330$. However it is correct to note that left on its own growth of derivatives can not occur without the influence of other variables.

Legal framework

Legal framework $\beta_1 = 0.018777$ implies that, holding other independent variables constant i.e. X_2 , X_3 , X_4 and X_5 , the opinion of the respondents was that enactment of favorable laws would increase growth of derivatives by 0.018777 over the sample period. The research concurs with researchers (Berkman and Bradbury, 1996; and Goldberg, and Tritschler, 1998), that the existing regulatory framework for the financial sector plays a critical role in facilitating the growth of derivatives in any market. In Kenya for instance the current legal framework does not provide an environment for the growth of derivatives.

Further, the current regulatory structure is characterized by regulatory gaps, regulatory overlaps, multiplicity of regulators, inconsistency of regulation and differences in operational standards and as such harmonization plays a critical role or contributes positively towards the growth of derivatives use and especially by the commercial banks. In accordance with prior expectation, the sign of X_1 is correct even under subjection of each of the independent.

Regression of Y and X_1

Dependent Variable: Y

Method: Pooled Least Squares

Date: 05/25/10 Time: 22:40

Sample(adjusted): 1 32

Included observations: 32 after adjusting endpoints

Total panel (balanced) observations 32

Variable	Coefficien t	Std. Error	t-Statistic	Prob.
C	3.839398	0.214131	17.93010	0.0000
1--X1	0.217877	0.085100	2.560235	0.0141
R-squared	0.134998	Mean dependent var	4.384091	
Adjusted R-squared	0.114403	S.D. dependent var	0.171102	
S.E. of regression	0.161018	Sum squared resid	1.088920	
Log likelihood	18.94479	F-statistic	6.554804	
Durbin-Watson stat	1.610494	Prob(F-statistic)	0.014146	

Regression of X_1 and X_2

Dependent Variable: Y
 Method: Pooled Least Squares
 Date: 05/25/10 Time: 22:42
 Sample(adjusted): 1 32
 Included observations: 32 after adjusting endpoints
 Total panel (balanced) observations 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.002146	0.257377	15.54974	0.0000
1--X1	0.215812	0.084838	2.543819	0.0148
1--X2	-0.036960	0.032670	-1.131334	0.2645
R-squared	0.161184	Mean dependent var	4.384091	
Adjusted R-squared	0.120266	S.D. dependent var	0.171102	
S.E. of regression	0.160484	Sum squared resid	1.055955	
Log likelihood	19.62107	F-statistic	3.939203	
Durbin-Watson stat	1.553928	Prob(F-statistic)	0.027238	

Regression of X_1 and X_3

Dependent Variable: Y
 Method: Pooled Least Squares
 Date: 05/25/10 Time: 22:44
 Sample(adjusted): 1 32
 Included observations: 32 after adjusting endpoints
 Total panel (balanced) observations 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.621060	0.241906	14.96885	0.0000
1--X1	0.233381	0.083417	2.797771	0.0078
1--X3	0.052362	0.029313	1.786322	0.0814
R-squared	0.197458	Mean dependent var	4.384091	
Adjusted R-squared	0.158310	S.D. dependent var	0.171102	
S.E. of regression	0.156975	Sum squared resid	1.010291	
Log likelihood	20.59364	F-statistic	5.043842	
Durbin-Watson stat	1.611616	Prob(F-statistic)	0.011005	

Regression of X_1 and X_4

Dependent Variable: Y
 Method: Pooled Least Squares
 Date: 05/25/10 Time: 22:46
 Sample(adjusted): 1 32
 Included observations: 32 after adjusting endpoints
 Total panel (balanced) observations 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.395777	0.202806	16.74398	0.0000
1--X1	0.016476	0.083449	0.197435	0.8445
1--X4	0.661484	0.146887	4.503337	0.0001
R-squared	0.421262	Mean dependent var	4.384091	
Adjusted R-squared	0.393031	S.D. dependent var	0.171102	
S.E. of regression	0.133303	Sum squared resid	0.728552	
Log likelihood	27.78619	F-statistic	14.92191	
Durbin-Watson stat	1.752671	Prob(F-statistic)	0.000014	

Regression of X_1 and X_5

Dependent Variable: Y
 Method: Pooled Least Squares
 Date: 05/25/10 Time: 22:49
 Sample(adjusted): 1 32
 Included observations: 32 after adjusting endpoints
 Total panel (balanced) observations 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.131398	0.192147	16.29690	0.0000
1--X1	0.163380	0.062272	2.623641	0.0122
1--X5	0.195098	0.031238	6.245626	0.0000
R-squared	0.556730	Mean dependent var	4.384091	
Adjusted R-squared	0.535107	S.D. dependent var	0.171102	
S.E. of regression	0.116663	Sum squared resid	0.558017	
Log likelihood	33.65294	F-statistic	25.74721	
Durbin-Watson stat	1.795914	Prob(F-statistic)	0.000000	

Trade Liberation

Trade liberation $\beta_2 = -0.010866$ implies that, holding other independent variables constant i.e. X_1 , X_3 , X_4 and X_5 , trade liberation contributed negatively to the growth of derivatives by 0.009766, over the sample period.

The response was that there has been significant trade liberalization and further liberalization without changing the other variables would have no significant effect on the growth of derivatives in Kenya.

Savings and Investment

Holding other independent variables constant i.e. X_1 , X_2 , X_4 and X_5 , an increase of opinion in Savings and investment in the financial sector will contribute positively by 0.053422 towards the growth of derivatives in Kenya.

Macro Economic Variables

Macro Economic Variables $\beta_4 = 0.031834$ means that holding other independent variables i.e. X_1 , X_2 , X_3 and X_5 constant, one level increase in opinion of the statistical indicators of macro economy would increase the level of derivative growth by 0.031834.

Level of Market Development

Level of market development has a positive effects on the growth of derivatives by the commercial banks in Kenya by $\beta_5 = 0.514834$. This indicates that holding other independent variables i.e. X_1 , X_2 , X_3 and X_4 constant, an increase of opinion in market development would facilitate to growth of derivatives by 0.514834 .

The Goodness Fit of the Model

The coefficient of multiple determinants denoted by R^2 , is a measure of proportion of the variations of the regress and explained by the corresponding explanatory variables. In the case of this model, the coefficient would be defined as follows:

$$R^2 = \frac{\text{Explained Variations}}{\text{Total Variations}}$$

The values of R^2 lie between zero and unity.

$$0 \leq R^2 \leq 1$$

A value of unity implies that 100 per cent of the variations of Y have been explained by the explanatory variables. On the other hand, a value of zero implies that no variations have been explained at all.

From the survey, a value of 0.799505 is attained for the coefficient. This means that:

- (i) 80 per cent of the variations of the dependent variable have been explained by the explanatory variations.
- (ii) Only 20 per cent of the variations are unexplained and are taken care of by the error term.
- (iii) The conclusion is that the regression model at issue has a good fit.

The main weakness of R^2 , is that it does not take the degree of freedom into account, a weakness that is corrected by using the adjusted R^2 .

In order to solve this weakness: \bar{R}^2 is defined as:

$$\bar{R}^2 = 1 - \frac{\text{Var}(e)}{\text{Var}(Y)}$$

\bar{R}^2 assumes negative values. When this happens, its value is taken as zero. From the surveys model:

$$\bar{R}^2 = 0.773124$$

This implies that 77 per cent of the variations are explained by the model. The variable considered included X_1 , X_3 , X_4 and X_5 , X_2 is not considered because it has a negative effect on attainment growth of derivatives.

The Accuracy of the Estimations of the Variables

Standard Error of Regression

S.E. of regression = 0.081498

Using the analysis model:

The standard error of regression measures the accuracy of the estimated figures. It is the standard deviations of the regression residual. The smaller the value of standard error of estimate, the closer will be dots to the regression line and the better the estimates based on the equation for this line. If the standard error of estimate is zero, then there is no variation about the line and the correlation will be perfect.

the standard error of estimate is small hence ascertaining the goodness and representation of the regression line which describes the average relationship between each independent variable ($X_1, X_2, X_3, X_4,$ and X_5) to the dependent variable(Y)

The Standard Errors

$$Y = 2.744330 + 0.018777X_1 - 0.010866X_2 + 0.031853X_3 + 0.514834X_4 + 0.183200X_5$$

$$S_e \quad (0.184266) \quad (0.053115) \quad (0.017271) \quad (0.016784) \quad (0.096405) \quad (0.022386)$$

The standard error is the ratio of the coefficient to their t – statistics. The SE must be small indicating that there is little statistical disturbances in the estimates hence the coefficients are statistically reliable which concurs with the output of the regression.

The Correlation

Correlation means the existence of some definite relationship between two or more variables.

Durbin - Watson Statistics

It is a test for autocorrelation which is based on the assumption of time series. It should be close to 2 or more to show lack of autocorrelation. From the regression

$$\text{Durbin-Watson stat} = 2.103602 \text{ or } 2$$

This indicates that the disturbance generated by different cross-sectional observations is independent of each other.

Summary of findings

The general objective of this study was to establish the factors hindering Kenyan commercial banks from adopting derivatives as a risk aversion strategy. Analysis of the response from all the commercial banks in Kenya indicates that approximately 79 % of variations are well explained by the independent variables. $X_1, X_3, X_4,$ and X_5 are the most significant predictors based upon Y-value, indicating that the regression equation is statistically significant. (X_2) was found to have no significance to the equation.

The first specific objective was to determine whether there was a legal framework and if yes further analyzes its adequacy. The study shows that there are great concerns across the board because there are no legal policies adopted in Kenya in the use of derivative markets. Based on this concern and observation, there is great need for the legislature to come up with policies in this area.

The second specific objective was to determine whether the current trade liberalizations and particularly in the financial sector have positive or negative relationship with the growth of market derivatives by commercial banks in Kenya. According to the study it emerged that though there has been major reforms in the financial sector, they have no relationship with the growth of derivative market and particularly by commercial bank in Kenya. Thus it was deemed insignificant towards the growth and use of market derivatives by commercial banks. The third specific objective was an attempt to establish whether the level of savings and type of investments affected the growth of derivatives market. Though other researchers found it to be of great significance, the respondents felt it contributes marginally towards growth of derivative market.

According to the study, the fourth specific objective sort to find out if the current macro economic variables are effective in supporting the growth of derivatives market within the Kenyan commercial banks. From the study, respondents had the opinion that this variable contributed greatly to adoption of a derivatives market in Kenya.

The final objective was to establish whether the current level of market development affected growth of derivative markets positively or negatively. The players in the industry felt that the slow pace of development in the industry played a significant role in the slow growth of market derivatives in Kenya

Recommendations of the study

The main benefit of derivatives markets for commercial banks would be to enable them to self-insure against the volatility of capital flows. Their overdependence on bank credit as a source of funding could be reduced and through the introduction of commodity futures they could improve their management of seasonal risk, albeit with appropriate regulation and supervision.

Derivatives markets can be used to “self-insure” against volatile capital flows. Shallow financial markets and inadequate access to finance are major sources of concern in the industry generally. Volatile international capital flows have the tendency to destabilize shallow markets and precipitate a crisis if there is a change in investors’ appetite. The need to adopt stronger domestic policies should be underscored. The development of local derivatives markets would provide alternatives for the management of financial risks.

As other developing countries like South Africa are gradually relaxing exchange controls and further developing its financial market with the introduction of the currency futures market. Kenya can learn from this in their efforts to increase liquidity, while ensuring proper regulation and enhanced supervisory capacity.

Agriculture being the main source of income and can manage seasonal risks by introducing commodity futures. Agricultural products are affected by seasonal factors. Agricultural Commodity Futures and Options are essentially a means of spreading risk and a source of obtaining price insurance.

Increased interest from external investors enhances market liquidity and financial deepening, but it has the potential to destabilize shallow markets. Proper rules and regulations need to be put in place for derivatives markets to achieve the desired results, as is being done in South Africa.

The development of derivatives markets can provide an alternative to bank credit as a source of funding. This can help to create a more stable source of local currency funding, thereby cushioning the funding gap from capital flow reversals or “sudden stops.”

Macroeconomic policies and political fundamentals need to be strengthened to attract and sustain foreign investors’ interest in the derivatives market. Weakness in the domestic economic and political climate and domestic financial systems are often accompanied by a reversal of capital flows and a reduction in emerging markets’ access to international capital. To promote sustainable inflows efforts should also focus on effective regulation and enhanced supervisory capacity to prevent ‘hot money’ flows by investment managers from developed countries.

Domestic savings can be stimulated through the derivatives market. Kenya can introduce derivatives markets, thereby broadening the set of investment opportunities available to domestic investors and enhancing diversification of the investment portfolio through derivative instruments.

Investor protection can be enhanced through the inclusion of “caveat emptor.” Investors can be advised on the nature of risk associated with different derivative instruments through the incorporation of appropriate warnings such as “caveat emptor” into investor contracts. While such warnings will encourage investors to make informed decisions, other means of investor education will also be required.

Hedging instruments need to be available for the proper development of the derivatives market, although this should be accompanied by tight regulation and enhanced supervisory capacity. Derivatives bring speculators and hedgers together, thereby improving liquidity and

smoothing price changes in the underlying assets. Problems will arise if the market is one-sided.

References

- Belk, P.A and Glaum, M. (1990), "The management of foreign exchange risk in UK Multinational and empirical investigation, "Accounting and Business Research, Vol. 21 No. 21 No. 81
- Berkman, H., Bradbury, M.E, Hancock, P and Lunes, C (2002), "Derivative Financial Instrument use in Australia, "Accounting and Finance Vol. 42 No. 2.
- Bodnar G; Gebhardk G. S., and Marston, R. C. (199(J), "1995 Wharton survey of derivatives usage by US NON-financial firms", Financial management Vol. 25.4.
- Bouzouita, R. and Young, A. J. (1998a) "Catastrophe insurance options. Insurance company management perceptions, "Journal of insurance regulation, Vol. 16 No. 3
- Bouzouita, R. and Young, A. J. (1998b) "property / casualty insurers' use of financial derivatives CPCU Journal, Suwamer.
- Howton S. O. and Perfect, S. B (1998), "Currency and interest - rate derivatives use n US firms" Financial management Vol. 27 No. 4.
- Nguyen, H. and R. (2000)" On the determinants of derivations usage by Australian companies", Australian Journal of Management Vol. 27 No. 1
- Smith, A. M. (1989), "Service quality relations between banks and their small business clients, "International journal of Banking Marketing, Vol. 5. No. 5.
- Sigh, K. (1996) The Globalization of Finance citizens Guide Zed books Ltd, London.
- Stulz, R (1996), Rethinking risk management, Journal of Applied corporate finance, Vol. 9 No. 3.
- Thurman, C.G. (1992),"Corporate banking, Service and relationship", International Journal of Bank marketing Vol. 10 No. 2
- Tufane, P. (1996), 'Svho manages risk, an empirical examination of risk management practices in the gold mining industry, "journal of Finance, Vol. 51.4
- Tyler, K. (1996) "Exchange relationships in financial services; Marketing equities to institution", International journal of Bank market Vol. 14 No. 2.