

EFFECT OF FINANCIAL DERIVATIVES USE ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN RWANDA: A CASE OF COMMERCIAL BANKS IN RWANDA

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Abstract: The increasing propensity of commercial banks to take part in derivative activities is one of the notable developments in the present day financial markets. Latterly, the financial innovation improvements, deregulation and development of the financial markets, and banks' margins decrease, due to low-quality loan applicants, motivate the commercial banks to provide advanced services and products to expand their profits. Profits from traditional banking activities has been decreasing whilst the competitiveness of markets have been increasing thus forcing banks to undertake derivative activities. The objective of this study was to establish the effect of financial derivatives on financial performance of commercial banks in Rwanda. This study adopted a descriptive research design in soliciting information on effects of liquidity management on financial performance of commercial banks. The target population was 14 commercial banks in Rwanda. The study employed the census approach. Primary quantitative data was collected by use of self-administered structured questionnaires. The researcher also used secondary data derived from the audited financial statement of the commercial banks for the period 2014 to 2016. The data collected was analyzed, with respect to the study objectives, using both descriptive and inferential statistics. The data was analyzed using descriptive statistics such as mode, median, mean, standard deviation. Multiple regression analysis was employed to determine relationship between financial derivatives and financial performance of commercial banks in Rwanda. Data was presented in tables, charts, figures and mathematical expressions. Return on Assets (ROA) was used as the proxy for financial performance while financial derivatives, liquidity ratio and shareholders' equity ratio were the predictor variables.

Keywords: Financial derivatives use, risk management in derivatives, financial performance.

1. INTRODUCTION

1.1 Background:

Derivatives go back similarly as Antiquity. Derivatives instruments were initially created to promote trade and protect the supply of commodities to cover farmers against crop failures. Over the years, derivatives were being used as a source of funding and also as a means to search for quick profits. In order to protect the supply of commodities and promote trade, both in geographical distance and time, the rulers' codes as a matter of fact demanded a written form of buying, selling and other trade related agreements so as to give sellers and buyers the best conceivable lawful assurance to take part in trade in Ancient Mesopotamia. The primary reason for this was to minimize the "your word against mine" saying in the event of disagreements. (Steve & Christian, 2012).

The utilization of derivatives instruments by commercial banks has risen in the previous two decades. In spite of broadly accessible information on derivative utilization, empirical research evidence on its effects is mixed. One conceivable reason to such opposing outcomes is whether the banks utilize derivatives for hedging or trading function. Data unveiled

by a wide range of firms, including banking industries and nonfinancial firms have been used by previous studies in attempting to enhance our comprehension of how the firms utilize derivatives. Distinguishable assumption in almost the greater part of all of this literature has been that firms, including financial firms, utilize derivatives for hedging. Nevertheless, Faulkender and Chernenko (2011) indicated that non-financial firms utilize derivatives for speculation as well as for hedging.

Pandey (2015) indicates that a derivative is a financial instrument whose pay-off is derived from some other asset which is called an underlying asset. It refers to those items that do not have their own independent values; rather it has a derived value. Therefore, a derivative has a significant place in finance and risk management. Balvinder (2015) said the increasing globalization of commerce and industry is exposing firms to various financial risks, unrelated to their lines of business. According to Pandey (2015), financial derivative instruments have mushroomed very quickly from simple financial futures to a wide variety of exotic and complicated securities around the world. Derivatives markets can facilitate the management of financial risk exposure, since they allow investors to unbundle and transfer financial 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 Varangis, 2009; Ilyina, 2014). Bartram et al. (2006) on the use of derivatives by nonfinancial firms examined some 7,300 nonfinancial firms from 48 countries, using corporate reports from 2000 and 2001. They found that 60 percent of these firms used derivatives. They indicated that the most frequently used derivatives were foreign-exchange (44 percent of firms), interest-rate derivatives (33 percent of firms) and commodity derivatives (10 percent). Further, they indicated that swaps and forwards are used more than options. Wayne (2009) found that when firms started using derivatives, on average their stock return volatility fell by 5 percent, their interest-rate exposure fell by 22 percent, and their foreign-exchange exposure fell by 11 percent. Clearly, firms do use derivatives for hedging, although if firms hedged systematically, the evidence suggests they would use derivatives much more than they actually do. Bodnar et al. (1995) found out that 28 percent of the firms they surveyed used derivatives to minimize earnings volatility.

The increasing propensity of banks to take part in derivative activities is one of the notable developments in the present day financial markets. Latterly, the financial innovation improvements, deregulation and development of the financial markets, and banks' margins decrease, due to low-quality loan applicants, motivate the commercial banks to provide advanced services and products to expand their gains. Profits from traditional banking activities has been decreasing whilst the competitiveness of markets have been increasing thus forcing banks to utilize derivative activities. Hasan and Ebrahim (2014) found out that the betterment of the bank's non-interest earnings was as a result of developing new sorts of financial instruments.

According to National Bank of Rwanda (2014), most of Rwandan financial institutions had a cut down in the process of loan Granting in the last quarter of the year 2012 up to first quarter 2013 and this drastic downward trend is suspected to be associated with Inability to apply right credit risk Management techniques. The National Bank has adopted the Capital Adequacy, Asset Quality, Management Quality, Earnings and Liquidity (CAMEL) rating system in assessing the soundness of the commercial banks.

BNR report, 2016 indicates that the level of profitability and sustainability of the sector dropped significantly with ROE and ROA reported at merely 8% and 1% respectively. Banking is a risky business and liquidity risk has been identified as critical to ensure that the banks position remain intact amid the intense competition in the industry. Therefore, the purpose of this study was to establish the relationship between liquidity management and financial performance of Commercial Banks in Rwanda.

1.2 Statement of the Problem:

Over the last few years, companies in the emerging market have increased the use derivative to hedge their positions. Thus, the derivative market has experienced a rapid growth over the recent years. Even though information on firm derivative usages is widely available in the developed world, the empirical research regarding whether the use of derivative will increase the financial performance of a company is still subject of debate especially in the developing world. The commercial banks are working on innovative ways to achieve profits instead of traditional methods and hedging of systemic risks by using financial derivatives because of the uncertainty and high volatility in the global and domestic financial markets. Compared to on-balance sheet asset-liability management, managing risks by using financial derivatives, normally known as off-balance sheet activities, gives the commercial banks the flexibility to attain their preferred risk exposures without changing their original business goals. Derivative use is also less costly could substitute

for expensive capital. However, financial derivatives also expose investors to additional risks. Entering a position in derivatives does not need much initial investment, but future cash flows given fluctuation of the underlying assets could be huge due to the high leverage behind the contracts. Thus, speculating and inappropriate hedging with derivatives have the potential to cause severe financial losses and even bankruptcy.

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1.3 Objective of the study:

1.3.1 General objective:

The general objective of the study was to establish the effect of financial derivatives use on the financial performance of commercial banks in Rwanda.

1.3.2 Specific objectives:

The study sought to address the following specific objectives: To determine how the risk management in derivatives affects the financial performance of commercial banks in Rwanda

2. CONCEPTUAL FRAMEWORK

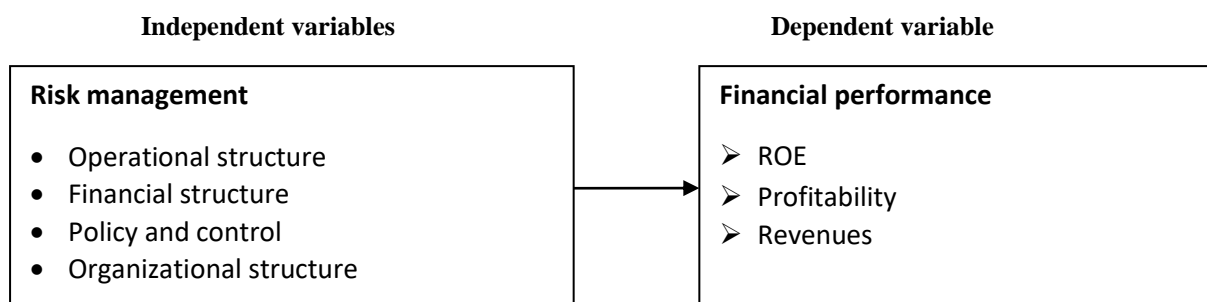


Figure 2.1: Conceptual framework

3. TARGET POPULATION

The target population for this research comprised of 70 managers from the fourteen commercial banks licensed by National Bank of Rwanda (BNR). From each bank three top managers were selected. This is because they are the only people in the bank allowed to provide copies of the annual reports of their respective banks. These included the 14 managing directors, 14 finance managers, 14 credit managers, 14 main branch managers and 14 operations managers. Therefore, the target population was 70 top managers.

3.1 Sampling Procedure:

The study comprised of a sample of 70 respondents from the 14 commercial banks as licensed by National Bank of Rwanda (BNR). Census approach was applied in this study.

4. RESEARCH FINDINGS AND DISCUSSION

4.1 Effect of Risk Management in Derivatives on Financial Performance:

The study sought to find the descriptive statistics of statements on risk management. The findings of the study show that, 60% of the respondents strongly agreed that the operational structure in risk management of the firm supports the effective performance of the bank. A simple majority (40%) agreed that the financial structure of the firm effectively improves performance of the company, 60% strongly agreed that the organizational structure in risk management of the firm support the effective performance of the bank, 40% agreed that the organizational resources of the firm support the effective performance of the company. A majority (90%) of the respondents either agreed or strongly agreed that the available technology in risk management of the firm support the effective performance of the company, 30% agreed that reporting and disclosures requirements in risk management of the firm support the effective performance of the bank, and

80% were undecided on responsibilities in risk management of the firm support the effective performance of the company. On whether, management has defined appropriate financial structure for the organization 40% agreed, also 60% of the respondents strongly agreed that management has operational structure that identifies risks that affect the bank. Lastly, the findings of the study show that, 60% of the respondents strongly agreed that management has put in place mechanisms for mitigation of critical risks that may result from fraud

4.2 Regression Analysis – Risk management and Financial Performance:

Regression analysis was conducted to empirically determine whether risk management was a significant determinant of financial performance. Regression results in Table 4.5 indicate the goodness of fit for the regression between risk management and financial performance was satisfactory in the linear regression.

Table 1: Model summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--|-------------------|----------|-------------------|----------------------------|
| 1 | .449 ^a | .311 | .309 | .6252 |
| a. Predictors: (Constant), Risk management | | | | |

An adjusted R squared of 0.309 indicates that 30.9% of the variances in financial performance of commercial banks are explained by the variances in risk management in the linear model. This implies that the simple linear model with risk management derivatives as the independent variable explains 30.9% of the variations in performance.

Result review that risk management is statistically significant in explaining financial performance of commercial banks in Rwanda. An F statistic of 7.36 indicated that the combined model was significant. From the analysis, a p-value less than 0.05 (p-value =0.0000) was obtained. This implies that the simple linear model with risk management as the only independent variable is significant.

Table 2: ANOVA results showing the effect of risk management on financial performance ANOVA^b

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|--|------------|----------------|----|-------------|------|-------------------|
| 1 | Regression | 11.15 | 1 | 11.15 | 7.36 | .000 ^a |
| | Residual | 28.684 | 26 | .476 | | |
| | Total | 39.834 | 27 | | | |
| b. Dependent Variable: Financial Performance | | | | | | |
| c. Predictors: (Constant), Risk management | | | | | | |

Correlation coefficients show that risk management (X1) is significant (p-value = 0.0000) in influencing financial performance (Y). The results of the analysis are shown in Table 4.7 and the fitted model from this analysis is shown below:

$$Y = 0.312 + 0.300X_1$$

Table 3: Coefficient results showing the relationship between risk management and Financial Performance Coefficients (a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|--|-----------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 0.312 | .180 | | 4.169 | .000 |
| | Risk management | .300 | .062 | .444 | 2.241 | .000 |
| a. Dependent variable: Financial performance | | | | | | |

5. CONCLUSIONS

Commercial banks in Rwanda do not hedge using derivatives as they feel that exposures are more effectively managed by other means (non-derivative use) and some felt that they were insufficiently exposed to financial risks. Banks drive for financial risk hedging is directly related to their exposure to financial risks affecting their interest rate, currency, stock and bond returns and commodity prices. Commercial banks use of derivatives is also affected by management skepticism against derivative use as hedging instrument. Derivative market and instruments used are not fully developed in Rwanda hindered by political environment, knowledge of derivatives, participants’ attitude, financial infrastructure and foreign competition. Commercial banks find it had to use derivative against the necessary market microstructure. These banks also find difficulty in pricing and valuing derivatives and accounting treatment of derivative even though such use is relatively inexpensive and effective method to reduce risk.

5.1 Recommendations:

The study advocates for speedy establishment of derivative market in Rwanda together with its ancillary regulatory framework that would protect market participants. Educational programs on derivatives should be developed and undertaken in Rwanda to demystify derivative trading and its accounting and valuation procedure. This would mitigate against managers skepticism on such uses. The finance offices would also understand the disadvantages and advantages of each and every hedging practice. Most firms did not have a deliberate policy on derivative usage and management of financial risks is solely left on the devices and whims of managers which make investors incur agency costs. There is, thus, a need for organization wide policy on derivative use to act as an operation manual for the managers and firms' agents.

REFERENCES

- [1] AAPOR (2011), *America Association for Public Opinion Research*, 111 Deer Lake Road, Suite 100, Deerfield USA
- [2] Agbada, A.O.&Osuji, C.C. (2013). The Efficacy of Liquidity Management and Banking Performance in Nigeria. *International Review of Management and Business Research*, 2(1), 223-233.
- [3] Anyanwu, J. C. (2013). *Monetary Economics: Theory, Policy and Institutions*. Benin City. *Hybrid Professional Publishers Ltd*.
- [4] Athanasoglou, P. P., Brissimis, S. N. & Delis, M. D. (2009). Bank specific, industry specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money*, 18 (2), 121-136.
- [5] Alfred, O. (2011). *Corporate Governance and Financial Performance of SACCOs in Lango Sub Region*. Unpublished Master's Thesis, Makerere University-Kampala.
- [6] Bendob A. (2015), Profitability of Public and Private Commercial Banks in Algeria: Panel data analysis during 1997-2012, *European Journal of Business and Management*, Vol 7, No.20.
- [7] Boot, A. W. A., &Marinč, M. (2008). *The Evolving Landscape of Banking*. *Industrial and Corporate Change*, 17(6), 1173-1203.
- [8] Boot, A. W. A. (2014). Financial Sector in Flux. *Journal of Money, Credit and Banking*, 46(s1), 129-135.
- [9] Chuang-Chang Chang, Keng-Yu Ho et Yu-Jen Hsiao (2012), *The effect of financial derivatives usages on commercial banks risk and value*, National central university, Taiwan.
- [10] Chernenko, S. & Faulkender, M., (2011). The Two Sides of Derivatives Usage: Hedging and Speculative with Interest Rate Swaps. *Journal of Financial and Quantitative Analysis* 46, 1727-1754.
- [11] Clement, O., & Martin, O. (2012) Financial Practice as a Determinant of Growth of Savings and Credit Co-Operative Societies Wealth. (A Pointer to Overcoming Poverty Challenges in Kenya and the Region). *International Journal of Business and Social Science*, 24(3), 204-219
- [12] Cohen, M., L. & Morrison, K. (2010). *Research methods in education*. (5th Ed.). London: RoutledgeFalmer.
- [13] Cooper, C. R., & Schindler, P. S. (2008). *Business Research Methods*. (10th ed.). Boston: McGraw-Hill.
- [14] Darek, K., (2012). Liquidity gaps in financing the SME sector in an emerging market: evidence from Poland. *International Journal of Emerging Markets*. 7(3), 335- 355.
- [15] Denisia, V. (2010) Foreign direct investment theories: An overview of the main FDI theories. *European Journal of Interdisciplinary Studies*, 2 (2), 53-59.
- [16] Diamond, D.W. (2014). "Financial intermediation and delegated monitoring." *Review of Economics Studies* 51: 393-414.
- [17] Erkki, K., (2014). *Cash Management Behavior of Firms and its Structural Change in an Emerging Money Market*. Oulu, Fin: University of Oulu Gliem A,
- [18] Froot, K. A., Scharfstein, D. S., & Stein, J. C. (2013). Risk Managements Coordinating Corporate Investment and Financing Policies. *The Journal of Finance*, 48(5), 1629-1658.

- [19] Gitogo, J.K. (2012). *The Relationship between Derivatives and Financial Performance of Commercial banks in Kenya*. Unpublished MBA Dissertation, University of Nairobi, Nairobi.
- [20] Gliem R (2013). *Calculating, interpreting, and reporting Cronbach's Alpha Reliability Coefficient for Likert-Type Scales*. A refereed paper presented at the \mid-West Research to Practice Conference, Ohio University, October 8-10,
- [21] Hannah, K., Gekara, M., & Joseph, M. (2013). Effect of operating costs on the financial performance of SACCOs in the banking sector in Kenya. *Prime Journal of Business Administration and Management*. 4(2), 1359-1363,
- [22] Huseyin, Y., (2011) another Perspective to Corporate Cash Management: A New Model And Definition. *International Journal of Humanities and Social Science*.1 (11).
- [23] ICA (International Co-operative Alliance) (2016). *Statement on the co-operative Identity*. Available from the University of Wisconsin Center for Co-operatives at
- [24] Jean-Laurent, V., (2008). Capital structure determinants: an empirical study of French companies in the wine industry. *International Journal of Wine. Business Research* 20(2), 171-194
- [25] Jin-Sun, K., Judy, K., & Lore. K, (2001). Moderating and Mediating Effects in Causal *Models, Issues in Mental Health Nursing*, 22. 63–75.
- [26] Kabamba, K., (2012). *Liquidity Management and Growth of Microfinance Institutions in Uganda (Case Study in Kibuku)*. Makerere University, Uganda.
- [27] Kamenchu, I.J. (2013). Factors leading to slow adoption of derivatives use in Kenya; A case of Commercial banks in Kenya. *International Journal of economics and Finance* 1 (3).
- [28] Kifle, T., (2011) Management of Savings and Credit Cooperatives from the Perspective of Outreach and Sustainability: Evidence from Southern Tigray of Ethiopia. *Research Journal of Finance and Accounting*.2 (7/8), 2222-1697
- [29] Kinyua, (2013). *Role of financial management practices in the performance of public service vehicle savings and credit co-operative societies in Kenya* (Published Master's Thesis) University of Nairobi.
- [30] Kombo, D.K., & Tromp, D.L.A. (2009). *Proposal and thesis writing: An introduction*. Nairobi. Pauline's Publications Arica.
- [31] Kothari, C. (2014). *Research methodology: Methods and Techniques*. (3rd ed.). New Delhi:New Age International.
- [32] Max, S., & David, B. (2012) New model rural cooperatives in Gansu: a case study. *Journal of Enterprising Communities: People and Places in the Global Economy*. 6(4), 325-338.
- [33] Modigliani, F., & Miller, M.H. (1958). *The cost of capital, corporation finance and the theory of investment*. The American Economic Review, 48(3), 261–297.
- [34] Mugenda, M., & Mugenda, G., A (2008). *Seminar Methods; Quantitative and Qualitative Approaches*. Laba Graphics Services
- [35] Mugenda, O. M., & Mugenda, A. G. (2008). *Research methods: Quantitative and qualitative approaches*. Nairobi-Kenya: Acts Press.
- [36] Mugenda, O.M., & Mugenda, A.G. (2013). *Research methods*. Nairobi: McMillan Publishers.
- [37] Muriithi, N. N. (2012). *Practices and financial performance of savings & credit cooperatives societies in Nairobi county-Kenya (Doctoral dissertation)*. University of Nairobi.
- [38] Nasurutia, A. (2013). *Effectiveness of financial derivatives in managing Foreign Exchange Exposure among commercial banks in Kenya* MBA Dissertation, University of Nairobi.
- [39] Noma, Z., (2012), Bank risk exposure, Bank failure and off-balance sheet activatie, 10th *International Paris finance meeting*, 20 December 2012.

- [40] Nyabwanga, R., Ojera. P., Alphonse. J., & Otieno. S., (2011) Effect of working capital management practices on financial performance: A study of small scale enterprises in Kisii South District, Kenya. *African Journal of Business Management* 6(18), 5807-5817.
- [41] Odhiambo, O. (2012). Corporate Governance Problems of Savings, Credit and Cooperative Societies. *International Journal of Academic Research in Business and Social Sciences*.2 (11), 2222-6990.
- [42] Odhiambo, J., (2013). *The relationship between working capital management and financial performance of deposit taking savings and credit co-operative societies licensed by SACCO societies regulatory authority in Nairobi county.* (Published Master's Thesis)
- [43] Orodho, J.A. (2008). *Techniques of writing research proposals and reports in education and social sciences, Nairobi:* Masola publishers.
- [44] Orodho, A. J. (2013). *Essentials of educational and social science research method.* Nairobi: Masola Publishers.
- [45] Sambasivam, Y., & Biruk, A. (2013). Financial Performance analysis of GOHE Cooperatives Savings and Credit Union in Bure Woreda, Ethiopia. *International journal research journal of economics and business studies*. 02(06).
- [46] Sammy, A., Philemon. B., & Juma., (2013) Analysis of Financial Mismatch in Cooperative Societies: A Case of Kakamega County, Kenya. *International Journal for Management Science and Technology (IJMST)*. 1(5), 2321-0362. 135
- [47] Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students.* (5th Ed.). London: Prentice Hall.
- [48] Simon, M. K. (2016). *Dissertation and scholarly research: A practical guide to start and complete your dissertation, thesis, or formal research project.* Dubuque, IA: Kendall/Hunt.
- [49] Stulz, R., (2010). Managerial discretion and optimal financing policies. *Journal of Financial Economics* 26, 3-27.
- [50] Wellington, J. (2010). *Educational research; Contemporary issues and practical approaches.* London: Continuum.
- [51] World Council of Credit Unions (WOCCU) (2009). *Statistical report, World Council of Credit Unions,* Washington D.C.
- [52] Zikmund, G.W., Babin, B.J., Carr, C.J., & Griffin, M. (2010). *Business research methods.* (8th ed.). South-Western, Cengage Learning.