

Effect of Market Risk and Operational Risk Exposures on Profitability of Life Insurance Companies in Kenya

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Abstract- The main objective of this study was to analyze the effect of market and operational risks exposure on profitability of Licensed Life Insurance Companies in Kenya. The specific objectives of the study are; to establish the effect of foreign exchange rate risk exposure on profitability of licensed insurance companies in Kenya. In order to attain the set objectives, the study tested the following hypotheses; H₀₁: Foreign exchange rate risk exposure does not have significant effect on profitability of Licensed Life Insurance Companies in Kenya; H₀₂: interest rate risk exposure does not have significant effect on profitability of Licensed Life Insurance Companies in Kenya; H₀₃: Operation expense risk exposure does not have significant effect on profitability of Licensed Life Insurance Companies in Kenya. The study adopted a descriptive survey research design. Descriptive study is concerned with finding out who, what, where and how of the variables of the concerned research. The target population for this study comprised of the 16 Licensed Life Insurance Companies in Kenya. The study used a panel data census of the 16 Licensed Life Insurance Companies in Kenya with consistent data between 2015 to 2019. The findings from the study established a significant and positive relationship between foreign currency exchange, interest rate and operational expense risk exposure on profitability of Licensed Life Insurance Companies in Kenya. The study therefore concluded that foreign currency exchange, interest rate and operational expense risk exposure can be used to predict profitability of Licensed Life Insurance Companies in Kenya. The study recommends that Licensed Life Insurance Companies in Kenya should ensure that they develop market and operational risk exposure policies to guide their business operations.

Index Terms- Financial Risk Exposures, Market Risk Exposures, Operation Risks Exposure, Financial Performance.

I. INTRODUCTION

Risk can be defined as a hazard, chance or likelihood of loss or bad consequence. It is closely associated with uncertainty where nobody can claim to be sure of what might happen next whether as an individual, business enterprise, society or the state in general. Risk can be classified as pure, speculative, fundamental or particular. Generally, in practice, risk management is associated with insurance. Nevertheless, risk management is much broader than insurance in that it deals with both insurable and uninsurable risks. Insurance is indeed a subset of risk management and strategically serves as one of the most important methods of risk

financing which no risk management programme can afford to ignore. While it is true that insurance is one way of handling risk, the underwriting of property and liability risks by insurers importantly need to be looked at from the perspective of risk management. The need for insurers to be aware and consciously manage the risks they have underwritten is of paramount importance.

1.1.2 Market Risks in Insurance Sector

Market risk is the potential loss of value of assets and liabilities arising from movement in market prices (Ghosh, 2012). Market risks are of financial nature which occurs owing to fluctuations in the financial market and are caused by a mismatch between the assets and liabilities of a business. The mismatch on compositions of assets and liabilities of any organization will determine the kind of exposure it has to various kinds of market volatilities (Abhay, 2019). Market risks can also be described as the risk of losses in liquid portfolio arising from the movements in market prices. Fluctuations of the market cause losses of income generated from the assets held for investment and lead to the poor financial performance of the organization (Aykut, 2016). In times of global financial crisis like in 2007, market risks affected the operation of the whole market and could not be avoided or mitigated by holding a certain portfolio (Ahmet, 2016). Market risk is financial in nature and is caused by fluctuations in the financial markets which results to mismatch between the organization's assets and liabilities (Abhay, 2019). Market risk is inherent in every business and thus proper risk management strategies must be put in place to balance off risk and returns minimizing negative effects on financial performance (Mudanya and Muturi, 2018). MFIs are crucial organizations in the financial sector worldwide as they have facilitated the access of financial services to a wider range of customers who could not access those services through the banks (Anand and Shakeel, 2012a; Musau et al., 2018).

Foreign Exchange Risk is defined as an exposure of an institution/ firm to the possible impact of fluctuations in foreign exchange rates. According to Armitage, Wold & Weissle (2002), foreign exchange risk is the danger that profits would be affected if foreign exchange rates change. Shapiro (1996) states that there are three types of foreign exchange rate risks that are faced by companies namely; translation or accounting risk, transaction risk, and economic risk. Translation risk in essence is balance sheet exchange rate risk comes up during the preparation of financial accounts in the value recognized in the parent company's financial statements. Essentially, translation risk is the effect exchange rates

have on the figures publicized on the parent company's consolidated financial statements. Thus, while income statements are typically translated at the average exchange rate over the period, balance sheet disclosure of overseas subsidiaries are often translated at the current exchange rate at the time of consolidation. The operating environment for businesses has become very volatile following increased globalization and internationalization of firms. Together with this, the business environment in Kenya has witnessed high variation in the foreign exchange rate over the recent past as the Kenya shilling depreciates against the widely used United States Dollar. Since majority of the firms either source their inputs or sale their output internationally, they have been affected by the fluctuation in exchange rates calling on them to implement necessary measures to manage the foreign exchange risk.

The issue of currency risk management for non-financial and monetary companies is managed separately from their core business and is sometimes dealt by their company treasuries. Most transnational companies have additional risk committees to manage the treasury's strategy in managing the rate (and interest rate) risk (Lam, 2013). This shows the importance that companies have placed on risk management concerns and techniques. Conversely, international investors sometimes, but not all the time, manage their exchange rate risk on its own from the underlying assets and liabilities. Since their currency exposure is associated to translation risks on assets and liabilities denominated in foreign currencies, they have an inclination to contemplate currencies as a separate asset category requiring a currency overlay mandate (Allen, 2013).

Exchange rate volatility creates a risky business setting where there are uncertainties concerning future profits and payments. These are particularly exacerbated in countries where monetary instruments for hedging against exchange risk don't seem to be developed, which is the case in several developing countries like Kenya (World Bank & MTTI, 2016). Forex risk is the risk connected with the sudden changes in exchange rates and exchange exposure because the extent to that surprising changes in exchange rates have an effect on the worth of a firm's assets or liabilities (Butler, 2008). Taggart and McDermott (2000) assert that forex connected companies are usually subject to forex risk on the cash payables and receipts in foreign currencies. Evan et al (2005).

1.1.3 Operational Risks in Insurance Sector

Operational risk refers to any financial loss to a business entity as a result of conducting its business in an unethical ways which may be accessioned by either internal or external factors. Operational risks are mainly experienced through business disruption, control failures, errors, misdeeds or external events. These events may cause monetary and reputational damages and in the end affect the profitability and market share of an organization. Some of the key operational risks faced by the various insurance companies in Kenya includes: Compliance with policies, procedures and practices, frauds and vandalism; failed customer relationships, regulatory risks, poor people managements. According to Kiochos (1997), any risk management process in any organization will involve four steps: identifying potential risks, evaluating potential risks, selecting appropriate risk management techniques for treating the risk exposures and implementing and administering the risk

management program. Kimball (2000) concurs with these sentiments that risk management includes hum an exercises which involve recognition of risk, risk appraisal, building up the right strategies to oversee it and mitigation of the same risk using managerial resources available. A well risk management process will empower an organization to cut down on its risk exposure and prepare for survival after any unexpected eventuality.

1.1.4 Financial Performance

Financial performance consists of many different methods to assess how well an organization is using its assets to generate income (Richard, 2009). Common examples of financial performance comprise of operating income, earnings before interest and taxes, and net asset value. It is of great importance to note that no single measure of financial performance should be considered on its own. Rather, a thorough evaluation of a company's performance should take into account many different measures of its performance. Companies must evaluate and monitor their profitability levels periodically so as to measure their financial performance through use of the profitability measures computed from the measures explained above. The two most popular measures of profitability are ROE and ROA. ROE measures accounting earnings for a period per dollar of shareholders' equity while ROA measures return of each dollar invested in assets.

Financial performance is a subjective measure of how well a financial institution can use assets from its primary mode of business and generate revenues. This term is also used as a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation (Pandey, 2008). Financial performance of a firm is the measure of the level of the organization's profit or losses within a specified period of time. Several measures have been used to measure the financial performance of financial institutions. These measures include: - Return on Equity (ROE), Return on Asset (ROA) and Net Interest Margin (NIM) (Murthy & Sree, 2003; Alexandru et al., 2008). Return on Equity (ROE) which is a financial ratio that refers to how much profit a company earns compared to the total amount of shareholder equity invested or found on the balance sheet. ROE is what the shareholders look in return for their investment. A business that has a high return on equity is more likely to be one that is capable of generating cash internally. Thus, the higher the ROE the better the company is in terms of profit generation. It is further explained by Khrawish (2011) that ROE is the ratio of Net Income after Taxes divided by Total Equity Capital. It represents the rate of return earned on the funds invested in the bank by its stockholders. ROE reflects how effectively a financial institution is using shareholders' funds. Thus, it can be deduced from the above statement that the better the ROE the more effective the management in utilizing the shareholders capital. Return on Asset (ROA) a major ratio that indicates the profitability of a bank. It is a ratio of Income to its total asset (Khrawish, 2011). It measures the ability of the bank management to generate income by utilizing company assets at their disposal. In other words, it shows how efficiently the resources of the company are used to generate the income. It further indicates the efficiency of the management of a company in generating net income from all the resources of the institution (Khrawish, 2011). This investigation

used net profit as a measure of the profitability of the life insurance companies.

1.2 Statement of the Problem

Market and operation risks are sometimes impossible to avoid bearing in mind that market risks are beyond the control of firms whereas operations risks are associated by the daily business transactions of the firms and these risks affect the firms' financial performance. Insurance firms assume risks of other businesses and but should also be weary of the market and operation risks around them to avoid financial loss (Arif et al., 2015). Insurance firms face risks of taking excessive risks that might attract huge insurance losses and increase management expenses in claims investigation, claims payments and monitoring costs. Therefore, adequate risk management process is necessary for insurance firms' enhance their financial performance. There is a gray area as far as Licensed Life Insurance Companies in Kenya manage market and financial risk exposures and how such management affects their financial performance which is the main objective of the current investigations.

The general objective of the study is to analyze the effect of market and operational risks exposure on profitability of Licensed Life Insurance Companies in Kenya. The specific objectives of the study are; to establish the effect of foreign exchange rate risk exposure on profitability of licensed insurance companies in Kenya. The second objective of the study was to find out the effect of interest rate risk exposure on profitability of Licensed Life Insurance Companies in Kenya. The third objective of the study was to find out the effect of operation expense risk exposure on profitability of Licensed Life Insurance Companies in Kenya. In order to attain the set objectives, the study tested the following hypotheses; H_{01} : Foreign exchange rate risk exposure does not have significant effect on profitability of Licensed Life Insurance Companies in Kenya; H_{02} : interest rate risk exposure does not have significant effect on profitability of Licensed Life Insurance Companies in Kenya; H_{03} : Operation expense risk exposure does not have significant effect on profitability of Licensed Life Insurance Companies in Kenya.

II. LITERATURE REVIEW

2.1 Theories Informing the Investigation

2.1.1 Extreme Value Theory.

According to Paul Embrechts (1999), Extreme value theory (EVA) is a division of measurements which takes a gander at the outrageous deviations from the median of likelihood disseminations. It tries to highlight from a given request test of a given arbitrary variable, the likelihood of occasions that are more outrageous than already watched. The financial industry including banking and insurance is experiencing significant changes. This theory examines the knowledge of operational risk management as it indicates the sensitivity of the identified risks and the alternative transfer mechanism in place to ensure a seamless process. Extreme value theory has a critical role within risk management in the insurance firms, and also in other financial sector.

2.1.2 Agency Theory.

Agency theory explains the relationship between the principals of the organizations and the operators of the firm. This

relationship incorporates partition of possession and control, and administrative inspiration. Agency theory concerns itself mainly in resolving issues that arise in this relationship either due to unaligned goals or because of risk levels of aversion. In corporate risk management issues tend to impact the administration demeanor towards risk taking and hedging.(Smith and Stulz, 1985).Agency theory also looks at the interest variations between the owners, administrators and debt holders. Because of variation in profits, management may result in taking too many risks or it may deliberate avoid engaging in projects which may have positive returns. (Mayers & Smith, 1987) therefore agency theory imply that distinct supporting approaches can have a significant influence on firm value, Stulz (1984) first suggested why it is important for the managers of a firm to take up risk management. He asserts that managers should be working for the shareholders and they are supposed to concern themselves into improving the profitability of the firms and the expected return of the firms' value. For shareholders, good risk management will save them on agency costs because they reduce in variation of returns of their firms. Managerial incentives in the execution of risk management have been considered by various researchers with a negative effect (Faff and Nguyen, 2002; MacCrimmon and Wehrung, 1990; Geczy et al., 1997). In any case, positive confirmation was found however by Tufano (1996) in his examination of the gold mining industry in the US Financial strategy theories were attempted in examinations of the money related hypothesis, since both speculations give practically identical figures in such manner however the immensity of experimental proof is by all accounts against this hypothesis. Agency theory underpins the procedure of risk management as a response to confound between administrative motivating forces and shareholder interests. Stakeholders and management will always differ towards the interest of the firm and the objective of risk management is also expected to vary. Shareholders may expect high risk – high return investments, but the managers might prefer low risk and high return investments. There agency theory should emphasize on good risk management practices geared towards aligning the interest of the managers and those of the shareholders so as to impact on the financial performance.

2.1.3 Stakeholder Theory

Stakeholder theory created by Freeman (1984) as an administrative guide from that point forward it has developed into an instrumental hypothesis which has come to be depended on for administrative utilize. Stakeholder theory urges that the interest of shareholders is the main determinant of corporate policy and procedures in any organization. The main contribution of stakeholder's theory to risk management is the contracts involved in employment ranging from sales to financing. (Cornell and Shapiro, 1987). In any business operating environment, consumers will have a trust in the organization which can keep offering them administrations later on henceforth extensively add to the organization's development and esteem However, the estimation of these inalienable cases is regarded to be exceptionally touchy towards expenses of money related misery and liquidation. Since great corporate hazard administration rehearses prompts to abatement in these normal costs, the organization esteem is likewise anticipated that would rise. Klimczak (2005) Therefore stakeholder theory provides a new insight into possible justification for risk management practices in any organization;

however it has not been tested directly. Along these lines stakeholders gives knowledge into conceivable legitimization for risk management in any organization; in any case it has not been tried specifically. It likewise highlights that littler firms are more inclined to financial issues which ought to drive them to receive a more strong risk management practices Stakeholder's theory underlines the requirement for the risk management in insurance companies and its significance in enhancing the value of the organization, but it doesn't show to some degree the impact it has on financial performance of any firm apart from proposing its effect on the organization's development.

2.1.4 Interest Rate Parity Theory

The Interest Rate Parity (IRP) is a frequently employed technique in making exchange rates forecasts. Projections are made by recording the spot exchange rates and the interest rates in the domestic and foreign countries respectively. This theory holds that the interest rate differential between two countries is equivalent to the difference between the forward exchange rate and the spot exchange rate. Interest rate parity contributes crucial role in foreign exchange markets, connecting interest rates, spot exchange rates and foreign exchange rates (Roll and Yan, 2000). The economic theory according to Huang (2009) shows that relating the differences in interest rates among countries to successive exchange rate changes seem to have broken down. Meese and Rogoff (1983) have demonstrated that other economic theories like the purchasing power parity also does not add much to random walk forecasts of exchange rates at horizons of a year or less. These studies have shown that uncovered Interest Rate Parity has been rejected strongly. The studies that followed have also confirmed these results. There is also a theoretical literature which attempts to determine if the failure of uncovered interest parity is due to risk aversion or market segmentation rather than market inefficiency. However, Roll and Yan (2000) suggest that forward exchange rates are unbiased forecasters of subsequent spots and there is really no dilemma with forward premium.

2.1.5 International Fisher Effect Theory

This model was developed by Irving Fisher in his book the speculation of Interest (1930). It uses market interest rates instead of inflation rates to elucidate why exchange rates alternate over time. The International Fisher impact states that exchange rates changes are balance out by interest rate changes. The Fisher theory merely argues that real interest rates across countries were equal as a result of the chance of arbitrage opportunities between money markets that usually occurs in the type of capital flows. Real interest rate equality implies that the country with the upper interest rate ought to even have higher rate of inflation that, in turn, makes the real worth of the country's currency decrease over time. The link between relative interest rates and exchange rates is explained at intervals the interest rate theory of exchange rate expectations. Nominal interest rate differentials between 2 countries tend to mirror rate of exchange fluctuations. Giddy (1977) called this the international Fisher effect, an in-depth relationship to the Fisher effect, a development discovered by Irving Fisher (1896). If the international Fisher impact holds, interest rates in appreciating currencies tend to be low enough, and in depreciatory currencies high enough, to offset expected currency gains and losses. The International Fisher effect (IFE) theory suggests that foreign currencies with comparatively high interest rates can tend to depreciate as a result of the high nominal

interest rates replicate expected rate of inflation (Madura, 2010). Does the interest rate differential really facilitate to predict future currency movement? obtainable proof is mixed as in the case of PPP theory. Within the long-term, a relationship between interest rate differentials and sequent changes in spot exchange rate appears to exist however with wide deviations within the short run (Hill, 2004). The international Fisher impact is understood to not be a decent predictor of short changes in spot exchange rates (Cumby& Obstfeld, 1981).

The international Fisher impact (IFE) principle suggests that overseas currencies with tremendously high hobby quotes tend to depreciate because the high nominal interest prices mirror expected charge of inflation (Madura, 2010). In the long-run, a courting between interest charge differentials and subsequent changes in spot exchange price appears to exist but with vast deviations within the brief run (Hill, 2004). The global Fisher effect is known no longer to be an amazing predictor of brief-run adjustments in spot change costs (Cumby and Obstfeld, 1981). This inconstancy may be defined via the fact that there's a whole host of factors that would cause change rates fluctuations, those include forex supply and demand, stability of payments troubles, growing inflation, hobby price, national profits, monetary coverage, expectancies and speculations (Khalwaty, 2000). Thomas (1985) took a look at of the IFE principle by way of examining outcomes of buying future contracts of currencies with higher interest fee that contained discounts (relative to the spot rate) and selling futures on sixteen currencies with low hobby charge that contained rates. Contrary to the IFE principle the look at observed that 57 percent of the transactions created by means of this method were worthwhile. The common benefit become higher than the common loss. If the IFE concept holds, the high hobby fee currencies ought to depreciate even as the low hobby price currencies need to admire, consequently yielding insignificant earnings with the aid of the transactions. Adler and Lehman (1983), Adler and Dumas (1983), all determined proof of big variant in the dating among inflation fee differential and exchange charge. Hakkio (1986) observed but that even within the long-run, the relationship among inflation quotes differentials and trade rates become not perfect but diagnosed the usage of inflation differentials in forecasting lengthy-run actions in change rates.

The relationship between interest rate and inflation, first recommend via Fisher (1930), postulates that the nominal hobby fee in any period is same to the sum of the actual hobby fee and the expected charge of inflation that is termed the Fisher impact. Fisher (1930) hypothesized that the nominal hobby fee can be decomposed into additives, an actual fee plus a predicted inflation rate. He claimed a one-to-one dating among inflation and interest fees in a world of perfect foresight, with real hobby costs being unrelated to the predicted price of inflation and determined entirely by using the actual factors in an financial system, which includes the productiveness of capital and investor time preference, that is an important prediction of the Fisher hypothesis for, if real interest quotes are related to the anticipated price of inflation, modifications within the actual charge will now not result in full adjustment in nominal rates in reaction to predicted inflation.

2.2 Empirical Review

2.2.1 Foreign Exchange Risk Exposure and Profitability

Bhatia (2004) research on mitigating foreign exchange risk for investing in microfinance institutions in developing countries found that there is a clear trade-off for investors mitigating currency risk in least developed countries in the form of contract fees for the benefit of protection against exchange rate fluctuations. The researcher noted that investors interested in MFI's should use the ideal currency options. Changes in exchange rates have implications for the profitability of firms and financial decision-making. The Euro was formed mainly to eliminate currency risk to enable Euro zone firms operate free from exchange rate volatility that caused price uncertainties. There is evidence that the creation of such currency unions results in a dramatic increase in bilateral trade (Frankel and Rose, 2002). Ahmed (2007) in the study realized the social role of Islamic finance examined that the bank has to create various reserves to cover various risks arising due to the nature of its assets and liabilities since it positively contributes to risk management in microfinance. The importance of risk management has significantly increased now and will continue to grow in the future. Factors such as the integration of new technology and the rising competition in the industry further reinforces the significance of managing risk in banks. In his study, a survey of foreign exchange risk management practices in forex bureaus in Kenya, Ubindi, (2006) found out that some forex bureaus employed the conventional forex risk management practices while other forex bureaus had their own specific practices based on their views of what constitutes forex risk. He further noted that views on currency market fundamentals influenced hedging strategies. The strategies include taking individual positions, speculating and forecasting the markets with an aim of leveraging. Omagwa, (2005) in his study on how foreign owned commercial banks in Kenya managed their foreign exchange risk exposure found out that transactional risk exposure was prominent among other risks and found out that practices employed to manage these risks include leading and lagging, use of currency swaps and forward covers. Njuge, (2012) also surveyed foreign exchange risk management practices adopted by MFI's in Kenya and concluded that delaying of payments, price netting and negotiations and are the main management practices.

The aim of this research is to assess the effects of foreign exchange practices to financial performance of Commercial Banks in Kenya. Several components of corporate foreign exchange management practices are studied with reference to the financial performance of the banks. Singh (2013) did a study on the relationship between foreign exchange trading and financial performance of commercial banks in Kenya. The aim of the research was to establish the relationship between forex trading and financial performance of commercial banks in Kenya. A survey research design was adopted where all commercial banks were the focus of the study. Data was collected from secondary sources: commercial banks annual reports and derivatives data reported to CBK. Pearson correlation, descriptive statistics and multiple linear regression analysis were used. Thus, currency swaps, forwards and spots are significantly related with commercial banks' financial performance. Kipchirchir (2011) studied the relationship between financial performance of multinational corporations in Kenya and exchange rates volatility. Kipchirchir noted a strong relationship between financial

performance for multinational corporations and exchange rate volatility in Kenya.

Foreign exchange risk is a risk that the value of financial assets held as investments may fluctuate owing to changes in the value of the two trading countries' currencies. It is a risk to investor's side borne when disposing off their financial assets held in a foreign currency and they incur losses owing to volatility in the foreign exchange rate (Chen, 2020). Rahman and Hoque (2015) described foreign exchange risk as a financial transaction where a country's currency is traded into another country's currency. Foreign exchange risk arises from fluctuations of the foreign exchange rate during the transactions from the inception of the original commercial contract to the time of settling the consideration of the domestic equivalent of foreign currency amount. Nzioka and Maseki (2017) noticed that firms must put in place mitigation measures to manage foreign exchange risk.

The study showed that internal hedging techniques which include netting, lead and lags, invoicing sales and purchases in foreign currency and money market hedges are more preferred and influence the firm's financial performance. Most researches that examined the relationship between foreign exchange risk and financial performance (Apgar and Reille, 2010; He et al., 2014) among others used net foreign exchange position to measure foreign exchange risk and the study wishes to adopt it in this study.

2.2.2 Interest Rate Risk Exposure and Profitability

Interest rate risk refers to chances that an investment in bonds will suffer losses as a result of unexpected changes in interest rate. It is expected that interest rates will fluctuate up and down causing the value of investment security to shift, respectively (Chen, 2020). It is possible that unexpected fluctuations in interest rates will have adverse effects on the value of an investment. Several empirical studies have been done on the interest rate risk and financial performance. Bengi and Njenje (2016) observed that interest rate affects the MFI's growth. The interest rate level charged by MFI's is a major influence on the level of demand of credit facility issued. Increased interest rate charged by the MFIs prohibits prospective borrowers to come in bond but will seek for loans with less interest rate like from the commercial banks.

The increased interest rate also causes the borrowers with existing loans to pay more, and this leads to more loan default. The study found that interest rate has a negative influence on the growth of MFIs. The study supported the international Fisher effects theory, which stipulates that increase in interest charges will cause borrowers to seek for cheaper loans elsewhere. Odeke and Odongo (2014) observed that interest rate risk affects the financial performance of commercial banks. The study found that combined variation of interest rate risk factors composing of maturity gaps, basis risk and assets and liabilities margin accounted for up to 14.5% of the variation in financial performance of the bank. Maturity gaps and assets and liabilities influence the financial performance positively while basis risk does not have any significant influence. The findings however contradict previous studies by Estasy et al. (1996) and Bourgi (2019) who noted that basis risk has a high influence on financial performance which may cause a knowledge gap.

Ndegwa et al. (2016) noted that interest rate risk influences the financial performance of MFIs. The study observed that interest rates charged by MFIs influence the liquidity which was used as a measure of financial performance. MFIs are faced with

immense competition in the financial market, and therefore they must improve on consumer protection by increasing transparency in their communication of interest rate charged to their customers. They need to promote homogeneity in their interest rate calculation by adopting a standard method as used by other financial institutions like the commercial bank. The interest risk factor is very crucial as it affects the issuance of loans and the financial performance. Fair evaluation of MFIs lending interest rate depends on evaluation of final profitability of MFIs against their relevant costs. The minimum lending interest rate level to be charged should enable the MFI to be financially and economically sustainable (Veton et al., 2017).

Inflation risk is a risk undertaken by the investor when holding cash in or investing in an asset that is not linked to inflation. It is a risk that cash value will be reduced by inflation (Curtis, 2018). It is the probability that an investor might get losses from erosion of income from the investment owing to the rising cost of goods and services. Haroon (2015) observed that inflation risk affects financial development in a country. The study found that inflation is influenced by money supply and total level of deposits and is not affected by the bank credit to private sector. The findings showed that high inflation risk in the economy has negative influences on firm's financial performance. Veton et al. (2020) noted that financial institution's overall performance contributes highly to a country economic growth. Investment, trade openness and inflation have a positive significant influence on a country economic growth and thus institutions like MFIs need to analyze them well to maximize on the financial performance. Ifeanyi and Chukwuma (2016) contend that inflationary impacts on profitability and value of manufacturing firms. The study found that inflation has a negative relationship with the firm's value, whereas it has an insignificant influence on firm profitability. The study concluded that firms should ensure that when choosing the right viable investments or the purchase of fixed assets they should incorporate inflation rate to be able to arrive at a realistic net present value.

Positive inflation was found to be invaluable in the survival and growth of firms. Applying inflation-adjusted figures in a firm's financial statement enables the ascertainment of a firm's real net worth. The result contradicts some previous reviewed studies (Yong and Christos, 2012; Haroon, 2015) bringing out some knowledge gap. The contextual gap may arise as the study was done in a different sector of economy from the financial sector where MFIs operate. Adair and Berguiga (2015) noted that inflation risk is a significant barrier to the development of MFIs. A high inflation rate increases the level of real interest rate, and this makes the demand for loans by the borrowers reduced, hence it undermines the sustainability of MFIs. Inflation risk premium is a better performance measure of inflation risk. MFIs will have to choose whether to use a negative real lending rate or to use a nominal rate that covers inflation. Inflation affects the financial margin of MFIs. The MFIs usually charge an interest rate above the regulatory caps and collection of their deposits seems more effective. The rise in inflation risk affects the level of lending rates and the MFIs increase their rates to avoid deterioration of loan portfolios. Slower activities cause the MFIs to bear lower profits and overall financial performance.

2.2.3 Operational Risk Exposure and Profitability

A Boston Consulting Group survey, Pourquery and Mulder (2009) in their study found out that operational risk management practices is gaining acknowledgment as a fundamental part of the business. The review secured 60 banks from around the globe; the members included retail, discount and all inclusive banks. 70 percent of organization CEOs saw operational risk as imperative contrasted to 30 percent of heads of business. Business units have an essentially obligation to oversee operational risks on a day to day basis. Their support is significant in setting up a risk culture that pervades the bank and is viable at recognizing, evaluating and overseeing operational risks. Hiwatashi (2002) in his study points out several approaches to operational risk management in financial sector. He found out that banks usually control their operation risks based on qualitative risk management policies, procedures and guidelines. Currently this method is obsolete because of increased complexity of the banks operations.

To achieve the intended objective, banks should first try to measure the operational risks by prioritizing the risk control in every business line and categorize them. Measuring those risks is equally important for the management to determine whether the bank has appropriate capital to absorb the risks. Measurement will also help the banks to tie performance to employees risk management effectiveness. Herring (2002) in his study challenged the underlying principle for employing the capital charge suggested by New Basel Capital in order to alleviate operational risks. Operational risks deemed to be complex unlike other risks, therefore the consequences are huge. Tanase and Serbu (2010) propose that banks with the help of their advance technology can manage the operational risks by offering innovative products like e-banking which reduces the exposure to operational risks by cutting down any human involvement in the whole process. John mark (2012) in his study of modeling operational risk in Sweden indicates that operational risks appear to be anything but difficult to handle at first. Fit example information into a recurrence circulation and seriousness dispersion will begin mimicking losses and a few cells with numerous date focuses will be anything but difficult to distinguish. Operational risk management being such a wide idea to build up a model of it that must incorporate numerous kinds is exceptionally troublesome particularly when you have a less information in a cell.

Yusuf, (2005) in a survey approach examined the operational risk management in commercial banks in Kenya. The survey indicates that quantifying risks into various categories was widely practiced by Kenyan commercial banks, the research indicate that only sixteen (16) out of twenty two (22) banks surveyed had segregated risks into various categories for management and thus only few of these banks used various models to quantify risks. In additional his study notes that a Central Bank of Kenya survey of July 2005, published in the daily nation indicated that only seventeen (17) banks of the total banks registered in Kenya had put aside funds to cover against operations risk management practices and only ten (10) out of seventeen (17) has submitted adequate and consistent risk monitoring reports. In conclusion most banks in Kenya do not necessarily make an attempt to predict the degree of occurrence operational risks.

Kamau (2010) in a study of adaptation of risk management by commercial banks in Kenya, indicated that operational risk was seen to be very critical and it was 46% out of the other risks that occurred in commercial banks, and this is due to the high increase

in the use of automated technology, unqualified staffs and lack of management supports in the organizations, and also the internal and external frauds policy management Wanjohi (2012) in his survey examined the impact of financial risk management on financial performance in banks in Kenya. In his findings, dominant part of banks in Kenya was observed to practice great financial risk management accordingly it had a positive effect to their financial performance of those banks. The study recommended that banks ought to build up a modern risk measurement technique, for example, esteem at risk, recreation procedures and Risk-Adjusted Return on Capital. The study additionally proposed the utilization of subsidiaries to lighten financial risks and additionally create instructional classes appropriate to the requirements of work force in risk management.

Lyambiko (2015) conducted a study which was guided by two objectives: To determine the operational risks management practices and financial performance in commercial banks in Tanzania and to identify the sources of operational risks exposures among commercial banks in Tanzania. The study adopted a descriptive research design a target population of 36 licensed commercial banks as at 31st December 2013 with a sample of the 36 commercial banks being analyzed. Secondary data was collected from the financial statements of commercial banks between 2009 and 2013. A regression model was developed with bank performance being measured by ROA and the independent variables consisting of credit risk, insolvency risk and operational efficiency. The research findings established that the independent variables had varying degrees of relationship with financial performance of commercial banks. The research confirmed that operational efficiency was positively correlated with the financial performance of commercial banks while credit risk and insolvency risk negatively influenced the financial performance of commercial banks. Sewanyana (2011) conducted a study which was encompassed around three objectives: To establish the relationship between operational risk and organizational environment in Stanbic bank, to establish the relationship between organizational environment and organizational performance and to establish the relationship between operational risk and organizational performance in Stanbic bank in Uganda.

The study adopted both cross-sectional and descriptive survey design with the target population consisting of 60 staff members consisting 14 risk officers, 9 human resource consultants, 18 IT officers, 13 operation officers and 11 senior managers. A sample of 51 respondents was used for the study with questionnaires and interviews being used to obtain information. Secondary data was obtained from existing firms' literature, council reports and journals. The research findings established that there was a positive and significant relationship between operational risk management, organizational environment and organizational performance. The regression analysis further revealed that

operational risk management and organizational environment were significant indicators of organizational performance.

2.2.4. Financial Performance

A study conducted by Almajali, et al. (2012) on factors affecting the financial performance of Jordanian Insurance Companies listed at Amman stock market had objective of identifying the effect of age, leverage, liquidity and size on the financial performance of insurance companies. The study took all twenty five insurance companies listed in Amman stock market between the years 2002 and 2007 as their sample. The study whose focus was on Return on Assets found out that, age of the company has no significant statistical impact on financial performance of insurance companies but leverage, liquidity, management competence and size have a significant statistical impact on financial performance of insurance companies.

Mwangi and Iraya (2014) who carried out a study on determinants of financial performance of general insurance underwriters in Kenya had a conflicting result on size of the companies since they found out that size has no significant impact on financial performance. On the other hand, Omondi and Muturi (2013) in their study about factors affecting financial performance of listed companies at Nairobi Securities Exchange in Kenya found out that liquidity has a significant positive impact while leverage has a significant negative impact on financial performance of insurance underwriters.

Boadi, et al. (2013) conducted a study on determinants of profitability of insurance firms in Ghana using both descriptive and inferential statistics to examine a sample of sixteen insurance companies in Ghana. The study findings showed a positive relationship between liquidity, leverage and Return on Assets while there is a big negative relationship between tangibility and ROA. This is because liquidity helps firms to deal with unexpected contingencies and cope with obligations during low earning periods while leverage influences shareholders' return and risk plus firm's market value.

2.4 Conceptual Framework

A conceptual framework forms part of the agenda for negotiation to be scrutinized, tested, reviewed and reformed as a result of investigation and it explains the possible connections between the variables (Durham & Stokes, 2015). Conceptual frameworks are important to research as they clarify and integrate philosophical, methodological and pragmatic aspects of doctoral thesis while helping the profession to be seen as a research-based discipline, comfortable with the language of meta-theoretical debate, (Sykes & Piper, 2015). A conceptual framework for the present study shows the effect of operation and market risk exposure on financial performance of DT-SACCOs in Kenya and has been depicted in Figure 1 below.

Independent Variables

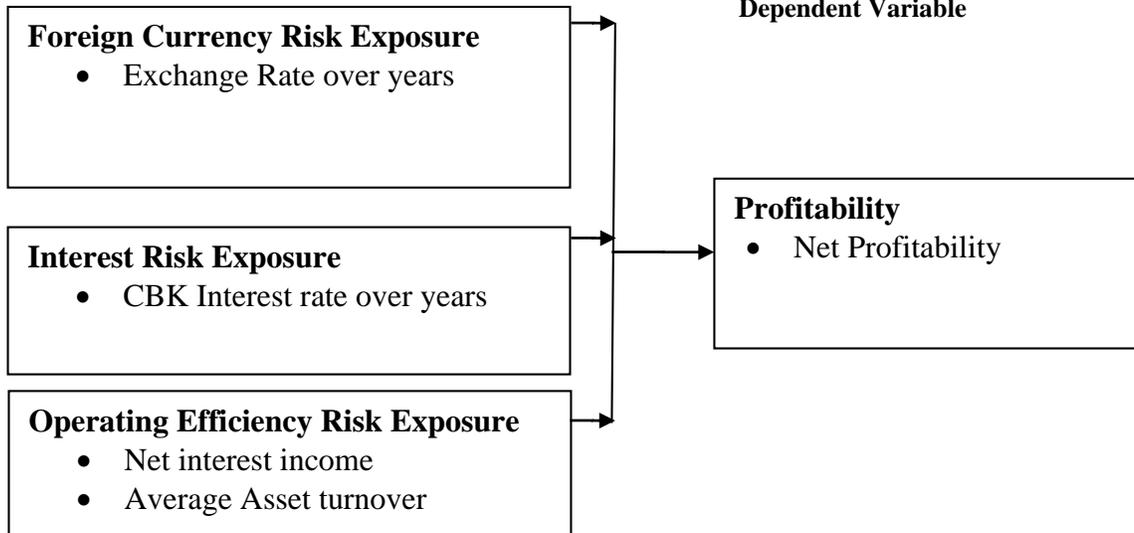


Figure 1: Conceptual Framework

III. MATERIALS AND METHODS

3.1 Research Design, Target Population and Sampling

The study adopted a descriptive survey research design. Descriptive study is concerned with finding out who, what, where and how of the variables of the concerned research. The target population for this study comprised of the 16 Licensed Life Insurance Companies in Kenya. The study used a panel data census of the 16 Licensed Life Insurance Companies in Kenya with consistent data between 2015 to 2019.

3.2 Data Collection Procedures

Data on interest rate and exchange rate were obtained from Central Bank of Kenya whereas data on net interest income, average asset turnover and net profitability were extracted from the Licensed Life Insurance Companies in Kenya published accounts between 2015-2019.

3.3 Data Analysis and Model Specifications

Finally panel data model was used to test the significance of the influence of the independent variables on the dependent variable.

Relationship between market and operation risk exposure and financial performance of Licensed Life Insurance Companies in Kenya.

$$Y_{it} = \beta_0 + \beta_1 InRE_{it} + \beta_2 FCRE_{it} + \beta_3 OERE_{it} + \varepsilon_{it} \quad \dots \dots \dots 3.1$$

Y_{it} = Financial Performance

β_0 is the time-invariant intercept

$InRE_{it}$ = Interest Rate Risk Exposure,

$FCRE_{it}$ = Foreign Currency Exchange Risk Exposure,

$OERE_{it}$ = Operation Expense Exposure,

$FCRE_{it}$ = Foreign Exchange Rate Risk Exposure

ε_{it} = is an error term,

i = Number of Licensed Life Insurance Companies in Kenya and t = refers to the time in years from the year 2015 to 2019, period of 5 years

3.4 Ethical and Consenting Consideration

In conducting the study, the researcher strived to adhere to research ethical guidelines. Information was treated with confidentiality and data collected was used for the purpose of the research alone and therefore not revealed to any other party with need to carry out a similar study. To avoid plagiarism, all sources cited in the study were acknowledged. Data collected was presented and analyzed as accurately as possible. Furthermore, the researcher acknowledged all persons who contribute to the success of the study.

IV. FINDINGS AND DISCUSSIONS

The causal effect of the independent variables on the dependent variable was done using regression analysis based random effect model. This section therefore presents the results of the inferential statistics results of the effect of market and operational risk exposures on financial performance of Licensed Life Insurance in Kenya. First, the section presents the results of the bivariate regression analysis of the risks exposures on financial performance. The study adopted random effect model (REM) based on Hausman results.

Table 1: Effect of the Foreign Exchange Risk Exposure on Profitability

Random-effects GLS regression	Number of obs =	80				
Group variable: code	Number of groups =	16				
R-sq: within = 0.0161	Obs per group: min =	5				
between = 0.4423	avg =	5				
overall = 0.2711	max =	5				
	Wald chi2(1) =	6.45				
corr(u_i, X) = 0 (assumed)	Prob > chi2 =	0.0111				
Profit	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
ex_rate	6.772302	2.665638	2.54	0.011	1.547748	11.99686
_cons	-.0442654	.4428599	-0.10	0.920	-.9122548	0.8237239
sigma_u	1.1700766					
sigma_e	1.060612					
rho	.5489542	(fraction			of variance due to u_i)	

The study established a statistically significant effect of foreign exchange risk exposure on financial performance of the Licensed Life Insurance Firms in Kenya ($ex_rate \beta = 6.772302$, $p=0.0011$). The R-square for financial performance was found to be 0.2711 indicating that 27% of the variance in financial performance can be explained by foreign exchange risk exposure. Therefore 73% of the variance in financial performance was explained by other factors outside this study (see Table 1). The F value for foreign exchange risk was significant ($F(1, 78) = 29.02$, $p=0.011$) implying that there was a significant effect of foreign exchange risk exposure on financial performance of Licensed Life Insurance Firms in Kenya. Foreign exchange risk exposure therefore could be used to predict the financial performance of Licensed Life Insurance Firms in Kenya. This finding indicated that an increase in foreign exchange risk exposure by 1 unit will lead to an increase in financial performance of Licensed Life

Insurance Firms in Kenya by 6.772302 multiple units. The regression models, therefore, can be used to predict financial performance of Licensed Life Insurance Firms in Kenya is given by

$$Y = -.0442654 + 6.772302 \cdot ex_rate + \varepsilon$$

where
Y = Financial Performance of Licensed Life Insurance Firms in Kenya

Ex_rate = foreign exchange risk exposure.

The null hypothesis H_{01} : Foreign exchange rate risk exposure does not have significant effect on profitability of Licensed Life Insurance Companies in Kenya was therefore rejected. This finding implies that foreign exchange risk exposure was a predictor of financial performance of Licensed Life Insurance Firms in Kenya.

Table 2: Effect of the Interest Rate Risk Exposure on Profitability

Random-effects GLS regression	Number of obs =	80				
Group variable: code	Number of groups =	16				
R-sq: within = 0.0153	Obs per group: min =	5				
between = 0.5492	avg =	5				
overall = 0.3599	max =	5				
	Wald chi2(1) =	11.17				
corr(u_i, X) = 0 (assumed)	Prob > chi2 =	0.0008				
profit	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
int_rate	9.335239	2.793317	3.34	0.001	3.860439	14.81004
_cons	-.3587732	.4363739	-0.82	0.411	-1.21405	0.496504
sigma_u	1.0312208					
sigma_e	1.0610407					
rho	.4857504	(fraction			of variance due to u_i)	

The study established a statistically significant effect of interest rate risk exposure on financial performance of the Licensed Life Insurance Firms in Kenya (int_rate β = 9.335239, $p=0.001$). The R-square for financial performance was found to be 0.3599 indicating that 36% of the variance in financial performance can be explained by interest rate risk exposure. Therefore 64% of the variance in financial performance was explained by other factors outside this study (see Table 2). The F value for interest rate risk exposure was significant (F (1, 78) =43.85, $p=0.011$) implying that there was a significant effect of rate risk exposure on financial performance of Licensed Life Insurance Firms in Kenya. Interest rate risk exposure therefore could be used to predict the financial performance of Licensed Life Insurance Firms in Kenya. This finding indicated that an increase interest rate risk exposure by 1 unit will lead to an

increase in financial performance of Licensed Life Insurance Firms in Kenya by 9.335239 multiple units. The regression models, therefore, can be used to predict financial performance of Licensed Life Insurance Firms in Kenya is given by $Y = -.3587732 + 9.335239 \text{int_rate} + \epsilon$ where Y = Financial Performance of Licensed Life Insurance Firms in Kenya
 int_rate = foreign exchange risk exposure.

The null hypothesis H_{02} : Interest rate risk exposure does not have significant effect on profitability of Licensed Life Insurance Companies in Kenya was therefore rejected. This finding implies that interest rate risk exposure was a predictor of financial performance of Licensed Life Insurance Firms in Kenya.

Table 3: Effect of the Operational Risk Exposure on Profitability

Random-effects GLS regression	Number of obs =	80				
Group variable: code	Number of groups =	16				
R-sq: within = 0.0038	Obs per group: min =	5				
between = 0.5950	avg =	5				
overall = 0.2569	max =	5				
	Wald chi2(1) =	4.89				
corr(u_i, X) = 0 (assumed)	Prob > chi2 =	0.0271				
roa	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
o_exp	5.2107	2.36e-07	2.21	0.027	5.91e-08	9.83E-07
_cons	.5254884	.3054102	1.72	0.085	-.0731047	1.12408
sigma_u	.96422358					
sigma_e	1.0672022					
rho	.44943716 (fraction					variance due to u_i)

The study established a statistically significant effect of operation expense risk exposure on financial performance of the Licensed Life Insurance Firms in Kenya (o_exp β = 5.2107, $p=0.027$). The R-square for financial performance was found to be 0.2569 indicating that 27% of the variance in financial performance can be explained by operation expense risk exposure. Therefore 73% of the variance in financial performance was explained by other factors outside this study (see Table 3). The F value for operation expense risk exposure was significant (F (1, 78) =26.96, $p=0.027$) implying that there was a significant effect of operation expense risk exposure on financial performance of Licensed Life Insurance Firms in Kenya. Operation expense risk exposure therefore could be used to predict the financial performance of Licensed Life Insurance Firms in Kenya. This finding indicated that an increase operation expense risk exposure by 1 unit will lead to an increase in financial performance of Licensed Life Insurance Firms in Kenya by 9.335239 multiple units. The regression models, therefore, can be used to predict financial performance of Licensed Life Insurance Firms in Kenya is given by $Y = .5254884 + 5.2107 \text{o_exp} + \epsilon$ where

Y = Financial Performance of Licensed Life Insurance Firms in Kenya
 O_exp = operation expense risk exposure.

The null hypothesis H_{03} : Operation expense risk exposure does not have significant effect on profitability of Licensed Life Insurance Companies in Kenya was therefore rejected. This finding implies that operation expense risk exposure was a predictor of financial performance of Licensed Life Insurance Firms in Kenya.

V. CONCLUSIONS, IMPLICATION FOR POLICY, PRACTICE AND FUTURE RESEARCH

5.1 Conclusions

The general objective of the study is to analyze the effect of market and operational risks exposure on profitability of Licensed Life Insurance Companies in Kenya. The specific objectives of the study are; to establish the effect of foreign exchange rate risk exposure on profitability of licensed insurance companies in Kenya. The second objective of the study was to find out the effect of interest rate risk exposure on profitability of Licensed Life

Insurance Companies in Kenya. The third objective of the study was to find out the effect of operation expense risk exposure on profitability of Licensed Life Insurance Companies in Kenya. The findings from the study established a significant and positive relationship between foreign currency exchange, interest rate and operational expense risk exposure on profitability of Licensed Life Insurance Companies in Kenya. The study therefore concluded that foreign currency exchange, interest rate and operational expense risk exposure can be used to predict profitability of Licensed Life Insurance Companies in Kenya.

5.3 Implication for Policy and Practice

The results of this investigation can be applied by Licensed Life Insurance Companies in Kenya should ensure that they develop market and operational risk exposure policies to guide their business operations. This is important because the business of insurance is to handle various risks exposures of their various clients, the insurance firms equally should have policies that guard them against market and operational risk exposures without which such firms can easily wind up and close their businesses.

5.4 Implication for Future Research

Insurance firms are many in Kenya and more firms are expected in Kenya right. The current study was based on 5 years panel data analysis which proved that foreign currency exchange, interest rate and operational expense risk exposure predicted profitability of Licensed Life Insurance Companies in Kenya. The study contributes to wide body of knowledge in finance, insurance, actuarial science and accounting. Scholars in these areas should use the basis of the findings to carry out further research that can inform strategies within their respective knowledge domain to manage the various risks exposures in their fields of interest. The current study analyzed a short period, future studies may focus on wider periods and increase other risk exposure variables.

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