EFFECT OF INFLATION ON FINANCIAL PERFORMANCE OF INSURANCE COMPANIES IN KENYA

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DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed:_____Date: ___12th November 2021_____

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This research project has been submitted for examination with my approval as University Supervisor.

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DEDICATION

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LIST OF ABBREVIATIONS

AKI	Association of Kenya Insurers
ANOVA	Analysis of Variance
CPI	Consumer Price Index
GDP	Gross Domestic Product
IRA	Insurance Regulatory Authority
KNBS	Kenya National Bureau of Statistics
PPI	Producer Price Index
ROA	Return On Assets
SPSS	Statistical Package for the Social Sciences
WIBA	Work Injury Benefit Act

ABSTRACT

Inflation has affected most economies in the 21st Century. With increase in fiscal stimulus packages and better accommodating monetary policies across the globe, there has been a major concern of increase in inflation. This can affect the profitability of insurance companies since their future claims could be higher than projected. The study aimed to determine the effect of inflation on the financial performance of insurance companies in Kenya. This study population comprised all the 56 insurance companies in operation in Kenya as at 2020 year end. The data was acquired for only 49 insurance companies which was equivalent to an 87.5% response rate. The independent variable for the study was inflation. The control variables were liquidity, capital adequacy, firm size, management efficiency and underwriting risk. In measuring the financial performance return on assets was used and it was the dependent variable. Annual data was obtained from secondary sources for a 5 years' period, 2016- 2020. A descriptive research design was used whereas association between variables was determined by a multiple linear regression model. SPSS version 28 aided was used to analyse the data. An R- square value of 0.093 was revealed implying that around 9.3% of the changes in financial performance can be related to the six chosen independent variables whereas 90.7% in the changes of financial performance was related to other variables that did not form part of this study. From the study findings it was additionally uncovered that the independent variables weakly correlated with financial performance (R=0.305). The ANOVA results exhibited that the F statistic was significant at 5% level with p value of 0.001. Henceforth the model was appropriate in explaining the association amongst the chosen variables. Additional results demonstrated that the inflation had a positive insignificant relationship with financial performance while management efficiency and capital adequacy had negative and statistically significant values for this study. The study discovered that firm size, underwriting risk and liquidity are statistically insignificant determinants of financial performance of insurance companies in Kenya. This gives recommendation that measures ought to be set up to manage inflation in insurance companies while at the same time ensuring that capital adequacy and management efficiency are enhanced as the two have a significant influence on financial performance.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Inflation has affected most economies in the 21st Century. With increase in fiscal stimulus packages and better accommodating monetary policies across the globe, there has been a major concern of increase in inflation. This can affect the profitability of insurance companies since their future claims could be higher than projected. In addition, inflation affects investment returns and asset valuations of insurance companies. During the 2008 financial crisis, inflation was a headache for many institutions. It was on top of most insurers risk management concerns because it affected future cost of claims, investment returns and asset valuations (Karl et al., 2010)

Three theories formed the basis of this study and they include; market power theory of inflation, quantity theory of money and mark-up theory. The market power theory of inflation depicts that inflation exists when sellers collude to fix a different selling price than the competitive price in an economy (Hall, 1986, 1988). In this case, inflation is caused by an increase in cost of production caused by increased wages. It is a common feature in oligopolistic markets. Mark-up theory postulated by Ackley (1978) states that inflation results from a combination of cost push and demand pull activities. The quantity theory of money on the other hand, asserts that inflation is determined primarily by the amount of money circulating in the economy (Friedman, 1970).

The Insurance Regulatory Authority (IRA) regulates insurance companies in Kenya. This is according to the Insurance Act. The IRA, founded under the Finance

Ministry, is also mandated with licensing and developing the insurance sector in Kenya. There has been an upward trend of inflation in Kenya in the last few years that was further worsened by the impact of Covid-19. While inflation is affecting the purchasing power of Kenyans, we are yet to understand its full impact on insurance companies in Kenya. This study aimed to check out the effect of inflation on the financial performance of insurance companies in Kenya. .

1.1.1 Inflation

Inflation is the rate of increase in prices over time (Oner, 2010). This leads to the erosion of currency. It is caused by majorly two factors: cost-push inflation and demand-pull inflation. Demand-pull Inflation is caused by too much money circulating in an economy with a low supply of goods. This causes the demand to increase and this leads to an increase in prices. On the other hand, when there is an increase in costs of production, cost-push inflation arises. This forces firms to increase their product's prices in order to remain profitable. Sowell (2004) divides inflation drivers into two: real economy and monetary aggregates. Real economy focuses on the supply and demand for production while monetary aggregates focus on the supply of money in the economy.

Inflation can impact insurance firms in several ways. They can experience reduced investment returns, asset valuations may fluctuate, but the biggest effect is the surge in claim’s repair costs on already running policies. Claim’s repair costs can grow at a faster rate if inflation were to increase significantly. This may lead to a significant increase in claim costs. If proper premium computation is not done at the placement of the insurance cover, profitability of insurance companies can be greatly affected.

Inflation is measured through calculation of a price change of price indices. The Consumer Price Index (CPI) is commonly used to measure price change for consumer goods. The Consumer Price Index mainly is used to monitor variations in price of selected goods or services (Simiyu & Ngile, 2015). The traditional method for creating the CPI involves picking a basket of goods and tracking their relative prices over time. The inflation rate is determined by taking each price change from the basket of goods and averaging them. Other ways inflation can be measured include : GDP Deflator and Producer Price Index (PPI). The PPI measures changes in the production costs of domestic producers while GDP deflator measures the change in prices in the whole economy unlike CPI that samples a basket of goods. In understanding how inflation affects financial performance of firms most researchers have used the CPI as evidenced by Boyd et al (2000), Wamucii (2010) and Kobia (2018). This study used CPI to measure inflation.

1.1.2 Financial Performance

Financial performance focuses directly on variables used in financial reporting (Almajali, Alamro and Al-Soub, 2012). It measures the ability of a company to use its assets to generate revenue and indicates to shareholders on the financial health of a company (Baba and Nasieku, 2016). This term expounds on how a firm is able to achieve its financial goals mainly by maximizing its equity and assets; while at the same time minimizing its liabilities and expenses.

Financial performance measures the activities, operations and policies in financial terms for a given financial period. This helps internal parties such as managers to monitor their performance and work towards improving on their weaknesses. External

parties on the other hand study a firm's financial performance and use it as an appraisal tool for their investment decisions (Bonn, 2000).

Financial performance can be measured in many different ways. However, key indicators such as revenue, leverage, operating income, capital adequacy, liquidity, return on assets and profitability can be used to indicate the financial performance of a firm (Fatihudin and Mochklas, 2018). In an insurance firm, financial performance is determined by calculating gross premium underwritten, net premium gained, underwriting profits, return on assets and return on capital employed (Murigu and Mwangi, 2015).

1.1.3 Inflation and Financial Performance

Inflation affects insurance companies in several ways. It can affect a firm's investments, increase claim costs, and affect an insurance company's reserves. However the clearest impact is the increase in claim costs especially on policies that are running (Pantelous and Passalidou, 2017). During inflationary periods, property-liability claims costs would tend to go up. For liability policies, especially those that are pegged on wages, inflation may increase the claim costs significantly as wages tend to increase at a higher rate than the CPI. This may erode an insurance firm's profitability. For property policies, inflation may increase the cost of repair or the cost to replace the item. Insurance companies conduct valuations before a risk is underwritten. During inflation, the insurance will cover claims but will not exceed the sum insured. However, increase in costs of repair due to inflation is rarely factored in most insurance contracts. Thus, during inflationary periods, the cost of claims is likely to increase. During past bouts of inflation, automobile manufacturers have tried to slightly increase the prices for new vehicles, however, they make up by increasing the

costs of spare parts at a higher rate than the inflation rate. This hits insurance firms hard as they cover most of these replacement costs.

Apart from affecting the cost of future claims on current policies, inflation affects loss reserves and forces property liability insurers to add more reserves. This may further affect their profitability. Increase in reserves generally leads to a decrease in profit margins. According to D'Arcy (1982) insurance investment returns and underwriting profit margin are affected negatively in cases of high inflation. Krivo (2009) on the other hand, concurs with the narrative and notes that inflation has a negative insignificant impact on underwriting profit margin. Muthoni (2012) concluded that inflation negatively influenced investment among insurance companies in Kenya. This is because low inflation encouraged investment among insurance companies as they grew confidence that their investments could not be eroded by inflation.

Various theories explain this relationship. According to the quantity theory of money, when the quantity of money in circulation increases, the general level of prices tends to go up. This will increase claim costs hence affecting financial performance. The mark-up theory highlights how demand-pull inflation and cost-push inflation work cumulatively to cause inflationary trends that end up affecting financial performance. Cost-push inflation may be caused by wage increments enforced by unions. This may lead to not only an increase in production costs but also an increase in operating expenses hence affecting financial performance of a firm.

1.1.4 Insurance Companies in Kenya

As per IRA (2021), 56 insurance companies operate in Kenya, of which 19 offer exclusively life insurance, 4 offer both life and general insurance while 1 offers exclusively medical insurance. These insurance companies are members of AKI

(Association of Kenya Insurers). Its main objective is to ensure prudent practice in the insurance business and ensure growth of insurance business in Kenya by creating public awareness. The insurance companies in the country play the following roles: mitigating losses for businesses, protecting individuals from various risks, instilling saving discipline for future security and also helps in boosting the economy of a country. The IRA (Insurance Regulatory Authority) regulates and supervises these insurance companies. Out of the 56 insurance companies, 10 are listed in the NSE. The insurance industry in Kenya also contains 5 Reinsurance companies, 163 insurance brokers, 18 reinsurance brokers, 10522 insurance agents, 123 insurance investigators, 32 loss adjusters, 30 insurance surveyors, 36 medical insurance providers , 131 motor assessors, and 9 risk managers (IRA, 2021).

All insurance companies have to adhere to specific regulations like capital adequacy, prompt claim payments and liquidity ratios. The regulator is obligated to ensure that insurance companies function in a manner that benefits all stakeholders. IRA monitors and enforces the insurer's solvency, efficiency and effectiveness. The Insurance Act contains these rules and regulations that are to be strictly adhered to. This includes the checks and licensing requirements of insurance companies. The Insurance Industry in Kenya has been experiencing low profits over the years as compared to other industries such as banking. This is attributed to constant losses posted in underwriting. As at the end of 2020, the General insurance business underwriting posted a loss of Ksh 1.18 Billion an improvement from a loss of KES 2.97 billion in 2019 (IRA, 2021). In addition seven insurance companies have gone under over the years. This includes : Blue Shield Insurance, Lakestar Insurance, Concord Insurance, Access Insurance Company, United Insurance, Stallion Insurance Company Ltd and Kenya National Assurance Company (KNAC). This ignites concern about the insurance

sector. This could boil down to pricing of premiums. Are premiums inflation-adjusted? Insurance companies may be undercutting and charging lower premiums during inflationary periods thus being overwhelmed by the high cost of claims. This study intended to find out the effect of inflation on financial performance of insurance companies.

1.2 Research Problem

Insurance companies are affected by an increase in cost of paying claims especially when there is inflation. At the inception of the policy, a policyholder pays a fixed premium. However, as time lapses and the inflation rate goes up, the insurer is required to step up and pay an already inflation-impacted claim. This definitely leads to an increase in the cost of claims. This inflation risk poses a great threat to insurance companies. This gets worse during periods of high inflations as both underwriting profits and investment returns will decrease. This will definitely lead to a surge in claim liabilities and reduce the insurer's assets. However, studies have had divergent views on the nature of the relationship between inflation and financial performance with some concluding positive, others negative whereas others giving contradicting results. Nyamu (2016) gives a positive relationship between the two variables while Kobia (2018) found out that the two variables are negatively correlated. Studies done abroad show that inflation affects non-life insurers differently than life insurers (Ahlgrim and D'Arcy, 2012). These contradictions are evident and may need further studies to clarify.

During the past five years, Kenya's insurance sector performance has grown tremendously. However, not all insurance companies report profits, 15 insurance

companies reported losses in 2019 (IRA, 2019). The Kenyan economy has experienced an upward inflationary trend; this has impacted the economy negatively. Kenyan companies have been deprived of their purchasing power as the Kenya Shilling has degraded over the years due to inflation. This trend could affect financial performance in insurance companies.

Empirical evidence is to a greater extent varied and inconsistent on how inflation affects financial performance. Ahlgrim and D'Arcy (2012) conducted a study of how deflation or high inflation affected the insurance industry and realized that each factor presented a significant risk to insurers in Canada. According to Karl et al. (2010), inflation impacted life insurers and non-life insurers differently. For non-life insurers, inflation caused an increase in claims and eroded profitability. For life insurers, inflation had a positive effect on profitability during inflation especially for policies that had terminal benefits. Due to erosion of currency due to inflation, the insurer's liability would reduce in the future. On the contrary, life insurers are affected negatively by inflation as it causes interest rates to increase. This negatively affects the value of return guarantees. Asinya and Uche (2018) studied the impact of inflation rate on insurance claims in the Nigerian Insurance Industry and found out that there was a positive correlation between the two. The study also showed that inflation had a less impact in the long term than in the short term. It increased the cost of claims in the short term and tended to reduce these costs in the long term.

Locally, Muthoni (2012) carried out a study to find out whether inflation affected investment among insurance companies in Kenya. Results from the study showed that inflation affected insurance investments negatively. This is because inflation eroded investment products' value. Kobia (2018) studied how profitability of commercial

banks in Kenya is affected by the inflation rate. He concluded that inflation and profitability of banks are negatively correlated. Banks were affected by high inflation hence eroding their profitability. Nyamu (2016) on the other hand wanted to find out whether macroeconomic factors affect the financial performance of insurance firms. She conducted a study in Kenya and found out that inflation and GDP growth rate were positively correlated to the financial performance of insurance companies. Exchange rates, money supply and lending rates had a negative correlation with financial performance of insurance companies. However all these effects were not significant.

Following the above studies, it is evident that most local studies are focused on macroeconomic factors which include inflation. There seems to be no concession on how inflation affects financial performance in insurance companies. There is also no local study that focuses solely on the impact of inflation on insurance companies. This created a gap that the researcher wanted to solve. Thus, this study aimed at finding out the effect of inflation on financial performance of insurance companies in Kenya.

1.3 Objective of the Study

The objective of this study was to establish the effect of inflation on the financial performance of insurance companies in Kenya.

1.4 Value of the Study

Findings from this study may help students, researchers and scholars who plan to study similar topics. They will be able to cite this study as they identify research gaps that will create research topics for other researchers.

Results from this study will benefit insurance claim managers who manage claims in insurance companies in Kenya. They will be able pick crucial recommendations and

information that will inform them on how best they can manage claims in an inflationary environment. This will help them reduce claim ratios hence improve their firm's financial performance.

The regulator and insurance associations such as AKI will use this study in formulating and implementing policies and regulations that will protect Insurance companies from exposure due to inflation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The researcher discussed in detail three theories that built a foundation for this study. Moreover, past empirical studies related to the research topic were highlighted. Since financial performance is determined by multiple factors, other factors that determine financial performance were discussed and a conceptual framework drawn to show how the study variables relate to financial performance. A summary of the literature review was highlighted at the end of the chapter.

2.2 Theoretical Framework

This section critically analyses theories that relate to how inflation affects insurance firm's financial performance. The theories that relate to this study are: the market power theory, the mark-up-theory and the quantity theory of money. The market power theory expounds on how inflation occurs when market leaders collude to fix their prices above competitive prices in an economy (Hall, 1986, 1988). This is not affected by demand and supply forces and cannot be predicted nor controlled. This situation affects a firm's financial performance. The mark up theory which is postulated by Ackley (1978) gives a different view of how inflation affects financial performance. The theory dictates that inflation is caused by a cumulative effect of cost-push and demand-pull activities and this causes a shift in general prices that affect financial performance. The quantity theory of money as spearheaded by Friedman (1970) explains how inflation is caused by an increase in supply of money in an economy. This increases the general level of prices hence affecting financial performance. More discussions on the theory are discussed in the subsections below.

2.2.1 Market power theory of inflation

According to this theory, inflation happens when sellers collude to fix a different selling price than the competitive price in an economy (Hall, 1986, 1988). Sellers do this in order to increase their profits without considering the effect on the consumer. This explains why price levels may increase even without an increase in demand. This trend mostly happens in oligopolistic markets where manufacturers increase the price of products due to increase in wages which are as a result of lobbying by trade unions. These companies have to make up for increased wages by increasing the price of their products. This leads to inflation. On the other hand, when wages increase, individuals have more income to spend and this sudden propensity to purchase often leads to inflation.

The market power theory of inflation explains how property-liability insurance claims can increase in value due to a deliberate increase by manufacturers and sellers. For property insurance, suppliers of spare parts may decide to increase the price of spare parts especially for rare models hence increasing the cost of claims leading to low profits in insurance firms. Service providers such as hospitals may increase their costs hence increasing medical claims. The current study recognizes the relevance of market power theory of inflation in the relationship between inflation and financial performance. Market power price controls can lead to increase in claim costs that can affect financial performance of insurance firms.

2.2.2 Mark-up Theory

Mark-up Theory was founded by Professor Ackley. The theory states that inflation occurs due to a combination of both cost push and demand pull activities and neither demand nor cost can cause inflation alone. Ackley (1978) suggests that both fiscal and

monetary policies should be used to control inflation. This is because inflation is mainly caused by excess demand or an increase in wages that increase manufacturing costs. This theory suggests that inflation occurs as a cumulative effect of both demand-pull and cost-push factors. This means that when demand increases, it causes a rise in prices which pushes the production costs upwards hence both the cost and price increases. The analysis assumes that both wages and prices are determined by employees and companies. Companies add a markup to their direct material and labour costs in order to cover certain administrative costs and maintain profitability. Labour also seeks a wage that adds a mark up on its cost of living. This may lead to inflation.

This theory is important to this study as it explains how market related demand pull and cost push activities can lead to an increase in future claim costs which can reduce profitability. For property-liability insurance, suppliers of parts may be forced to revise their prices upwards when demand increases. As they increase their mark up, the cost of living may go up causing employees to demand an increase in their wages and this may further push the cost of production upwards. This may lead to an inflationary spiral that may affect financial performance of insurance firms.

2.2.3 The quantity theory of money

This theory postulates that the amount of money in circulation has a significant effect on the changes in price levels. For an effective monetary policy, an economy has to maintain price stability (Cecchetti, 2000). This has to be overseen by the central banks as they also commit to keep inflation at a low level (Qayyum, 2006). According to this theory, it is the increase in money supply that causes inflation (Friedman, 1970). If the amount of money in circulation increases, the price levels will increase in equal

measure. This means that the consumer will pay more for goods and services as he has more money. This increase in prices will lead to inflation. In other words, when money supply increases and output does not increase, then money in circulation will be more than goods available for purchase. As a result, consumers will spend as much money to buy goods in the market. This leads to a devalued currency and robs consumers of their purchasing power. However, some economists differ with this theory and argue that an increase in money in circulation does not always lead to inflation (Harvey, 2011). They reason that such an increase directly affects interest rates, but does not guarantee a change in prices.

This study recognizes the importance of this theory because the quantity of money in supply may affect the cost of future claims and this may affect an insurer's financial performance. As per this theory, we expect that an increase in money supply would increase demand hence lead to an increase in general prices. Since most insurance contracts are annual, a sudden increase in claim costs due to inflation may affect an insurer's profitability. However, for life insurance, such inflation may be advantageous as the firm will pay future claims as per initial sum assured which will have been devalued.

2.3 Determinants of Financial Performance

Various factors other than inflation can influence the financial performance of a company. They can be either external or internal. Internal factors are within the control of the company while external factors cannot be controlled by the firm. However, a company can work to mitigate their effects. In the insurance sector, internal factors include: the efficiency and effectiveness of management, size of the firm, amount of capital employed, a firm's age, ownership of the firm, portfolio of

risks underwritten among others. External factors can range from inflation, exchange rates, interest rates to political instability (Mboga, 2015).

2.3.1 Inflation

Inflation may lead to a general increase in claim costs of insurers, which in return can reduce their profit margins. They have to pay property-liability claims in an already inflation-impacted economy while the premiums remain unchanged on already booked policies. For example, for property insurance covers, the repair costs may exceed the estimated repair costs during periods of high inflation. WIBA policies that cover workers against injuries while at work have their claims based on wages. Since wages tend to increase during periods of inflation, compensation can be higher than expected and this can lead to erosion of underwriting profits. Automobile claims are also affected by inflation since automobile manufacturers may increase cost of replacement parts that are frequently damaged, way above the inflation rate so as to cover for other losses. This increases the cost of repair and hikes insurance claims by a big margin. As a result, insurance companies can expect claim repair costs to increase more than the prevailing inflation rate during periods of high inflation (Ahlgrim and D,arcy, 2012).

2.3.2 Size of the Firm

The size of a firm determines its profitability (Singla, 2011). The bigger the firm, the more profitable it becomes. Big firms enjoy economies of scale and end up being more efficient than small firms (Ahmed, Ahmed, and Ahmed, 2010). Big firms also have a bigger scope and become more competitive in areas that call for stiff competition. A bigger market share gives them the opportunity to profit more. When it comes to undertaking capital intensive projects big firms are able to build up

enough financial resources as compared to small firms. This enables them to launch into more profitable projects that have little/no (Bayyurt, 2007).

The amount of assets a firm owns, determines its size (Amato and Burson, 2007). The more the assets a firm owns, the more the projects the company undertakes and this increases profitability (Lee, 2009). This makes such firms more profitable than small firms. Additionally, these assets can be used as collateral. This allows larger firms to access loans easily than small firms would do (Njoroge, 2014). Access to credit helps to boost a company's working capital. Kigen (2014) found out that total assets have no effect on insurance companies' profitability. However, he concluded that what matters most is the insurance company's market share. Ajao & Ogieriakhi (2018) found out that the size of an insurance firm affected profitability negatively. They explained that diseconomies of scales that came about as a result of uncontrolled-increase of insurance company sizes in Nigeria affected insurance companies that were big in size.

2.3.3 Level of Liquidity

Hanafi & Halim (2012) defines liquidity as the ability of a firm to settle their financial obligations as they fall due using current assets. In other words, a firm is said to be liquid if it can pay its immediate financial commitments without necessarily liquidating financial assets (Adam & Buckle, 2003).

In the insurance industry, liquidity is measured by the ability of the insurer to honor claims and other commitments to policyholders as they fall due without necessarily liquidating financial assets, increasing underwriting profits or recalling investments (Chaharbaghi and Lynch, 1999). Insurance companies are said to be liquid if they

have high net premiums, low loss ratios, enough assets to sell and high returns from investments. (Chen & Wong, 2004).

The insurer should ensure they maintain sufficient cash and cash equivalents that are sufficient enough to settle immediate liabilities including claims that fall due for payment.

2.3.4 Management Efficiency

According to Kusa & Ongore, (2013) management efficiency refers to the capability of managers in a firm to make good use of available resources to boost profitability. It is a key factor that determines how efficient the operations of a company are and can be measured qualitatively. Athanasoglou, Sophocles &Matthaois (2009) observed that measuring management efficiency can be done by looking at the internal controls of the firm, quality of the staff, organizational discipline and the firm's management systems . The better the management efficiency, the lower the level of operating expenses (Kusa & Ongore, 2013). This makes a firm more profitable. In the insurance industry, better managers can come up with policies that can reduce the claim ratios and lower overall expenses for insurance firms.

2.3.5 Capital Adequacy

In accounting, capital is calculated by subtracting a firm's total liabilities to its total assets. It is the major backbone that supports insurance companies' activities and shields them from negative occurrences. When measuring capital adequacy in insurance companies, it is important to calculate the ratio of equity from shareholders to total assets. Companies that have adequate capital are known to reduce borrowing. That way they are able to reduce their funding costs due to reduced prospective bankruptcy costs. Al-Shami (2013) and Malik (2011) noted that capital has a

significant positive relationship with insurance companies' profitability. An insurance company with adequate capital signals to investors of an above average performance when it comes to profitability.

2.3.6 Insurance Firm's Age

A firm's age refers to the sum of years a firm has operated since incorporation (Illaboya and Ohiokha, 2016). According to Abdeljawad and Dwaikat (2017), there is a significant positive relationship between the age of an insurance firm and its financial performance. Ajao & Ogieriakhi (2018) after conducting a study in Nigeria also concluded that insurance company's age had a positive effect on its profitability.

Older firms are said to make profits because they have been in operation for a long time and have developed more skills and more experience. They are more likely to tackle business threats more easily as compared to newer firms hence are able to remain profitable even in hard economic downtimes. On the contrary, Agarwal and Gort (2002) noted that as a firm ages, its technology, knowledge and skills may also get outdated as opposed to those of newer firms. This may lead to non-performance of some organizations and newer companies may buy such companies out.

2.3.7 Underwriting Risk

This is a financial risk caused by a variance between the premium paid versus the claim incurred. When the cost of claim exceeds the premium paid, the insurer will incur losses.This is can be controlled by employing effective underwriting and claim management practices (Mwangi, 2015).Underwriting involves analysing risks and grouping them in clusters for rating and coming up with rates that will cover the projected future claim exposure. Claim costs on the other hand form the largest proportion of an insurer's expenses and if not managed carefully can erode

profitability of insurance firms (Barth and Eckles, 2009). For an insurer, the ratio of claims to premiums denotes not only the underwriting risk but also the quality of business underwritten .

2.4 Empirical Review

In this section, the researcher has highlighted some global and local studies of various researchers who have conducted similar studies on how inflation affects financial performance. Their findings have been diverse.

2.4.1 Global Studies

Ahlgrim and D'Arcy (2012) researched on how deflation or high inflation affected the insurance industry. They collected secondary data for the period 1914-2009. A descriptive design was used and multiple regression models adopted to find out the impact of inflation and other factors by regime. They realized that each factor presented a significant risk to insurers. During moderate inflation, the insurance industry had the lowest underwriting profit. This showed that insurance profits and inflation are negatively correlated. However during high inflation, the profit margins were higher but there was not much correlation of profits with inflation. During deflation, the underwriting profits were positively correlated to inflation hence insurance companies posted the highest profits.

Karl et al. (2010) conducted a study on the correlation between liability claims and potential drivers. The study used a descriptive research design and collected secondary data from US, Canada, Germany, France and Japan. Data on health care expenditure growth, CPI inflation and wage inflation was collected from 1985 to 2006 with correlations computed with five year averages.The study concluded that inflation and other macro factors are correlated with claims growth. However, annual claims

growth is not closely correlated with the annual growth of inflation, wages or medical expenses.

Asinya & Uche (2018) conducted a study of how inflation impacted insurance claims in Nigeria. They used a descriptive research design. Secondary data for the year 1981 to 2017 was collected from the Central Bank of Nigeria. A multivariate model was then used to find out whether inflation and insurance claims were correlated. They added the exchange rate as an independent variable. The result of the study indicated that inflation and insurance claims in Nigeria were positively correlated. The results further explained that a rise in inflation will increase claims cost in the short term but decrease these costs in the long term.

Hussain (2015) conducted a study on the effect of macroeconomy to the insurance companies' profitability in Pakistan. The researcher collected secondary data from 39 insurance companies which were based in Pakistan. His study covered the period from 2006 to 2011.The researcher used a cross sectional research design and used a least squares regression model to analyze the data. The research findings suggested that inflation, equity market conditions and macroeconomic environment were positively correlated to insurance companies' profitability in Pakistan.

2.4.2 Local Studies

Muthoni (2012) wanted to find out how inflation on investment affects Kenyan insurance companies. Purposeful sampling was done to pick 35 insurance companies out of a population of 46 insurance companies in Kenya. The 35 insurance companies were mainly companies authorized to transact bid bonds business. Secondary data was collected for the period 2007-2011. The researcher adopted a descriptive research

design. The study concluded that inflation had an insignificant negative impact on insurance investment as it eroded the value of investment products.

Kobia (2018) researched on how inflation rate impacts profitability of Kenyan commercial banks. The researcher used secondary data from 37 out of 42 banks and covered a period of five years (2013-2017). A descriptive design was used and data was analyzed using regression analysis. Results indicated that inflation and profitability of banks are negatively correlated. Banks were affected by high inflation hence eroding their profitability.

According to Nyamu (2016), inflation has a positive correlation with insurance firms' financial performance. The researcher was finding out the relationship between macroeconomic factors and financial performance of insurance companies in Kenya. Data was collected from a population of 50 insurance companies. The study period was from 2006-2015. A descriptive research design was used and data collected was analyzed using SPSS where a regression model was used. Macroeconomic factors such as Inflation, exchange rates, lending rates, GDP growth rate and money supply were the independent variables. The independent variable was the return on assets. The findings highlighted that both inflation and GDP growth rate have a positive insignificant effect on the financial performance. On the contrary, there is a weak negative impact of exchange rates, money supply and lending rates on the financial performance of insurance firms.

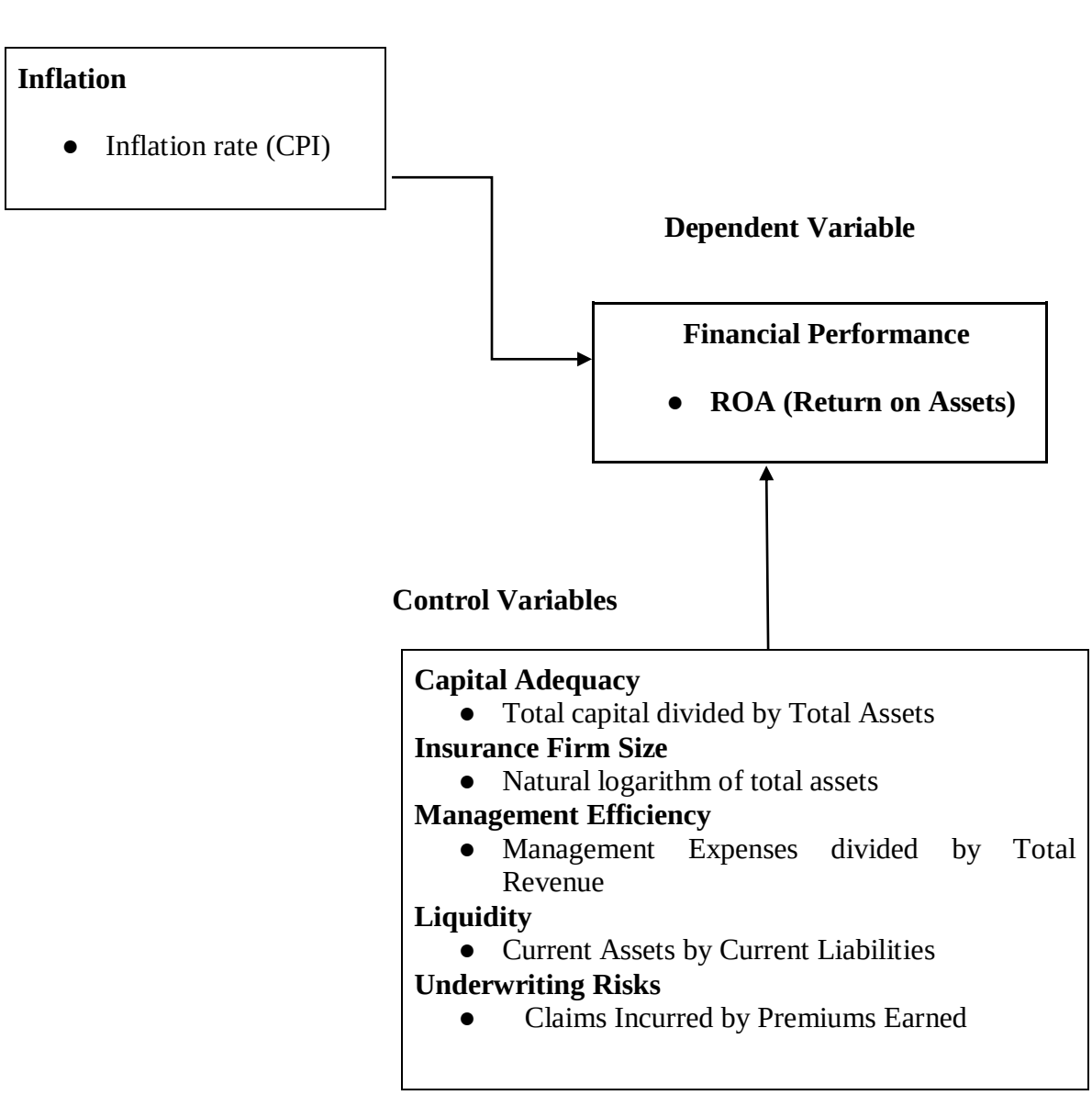
Mwangi (2017) researched on a similar topic to that of Nyamu (2016) and wanted to find out whether macroeconomic factors affected financial performance Kenyan insurance companies. A descriptive research design was used and secondary data was collected from IRA for four years; 2012-2015. The research focused on insurance

firms listed in the NSE. The study concluded that inflation rates are negatively correlated to an insurance firm‘s financial performance. This however represented a 12.9% effect on the ROA of insurance firms. Interest rates and exchange rates also have a negative impact on the ROA. However, the exchange rate has more influence on ROA than interest rates and inflation.

2.5 Conceptual Framework

Inflation was the independent variable which was a standard rate; the researcher calculated average monthly inflation rates to determine the annual inflation rate. The control variables that were characterized here were: capital adequacy(total capital/total assets), insurance firm size which was calculated by obtaining a natural logarithm of total assets. A ratio of management expenses to total revenue was used to calculate management efficiency, liquidity was calculated by dividing current assets by current liabilities and underwriting risk was obtained from the ratio of claims incurred to premiums earned. Financial performance which was our dependent variable was derived from dividing net profits by total assets (ROA).

Figure 2.1: Conceptual Model



Source: Researcher (2021)

2.6 Summary of the Literature Review

This chapter has highlighted three theories that set a foundation to our study: the market power theory of inflation, mark-up theory and the quantity theory of money. The chapter has also highlighted other factors that are likely to affect financial performance. Previously, scholars have carried out studies on the relationship between inflation and its effect on financial performance. Results and findings have been highlighted in the empirical review. These results are not consistent. In addition, it is evident that although there exist local studies on inflation, some of them focus on its effect on investment while some include inflation as one of the macroeconomic variables. According to the researcher's knowledge, few local studies have studied the impact of inflation on insurance companies. This is the research gap that this study has tried to address.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

A methodology helps in showcasing what the researcher plans to do to conduct the research. This chapter showed how the researcher collected data, the research design that was used and also indicates the target population. A section of the chapter highlighted how data was analyzed.

3.2 Research Design

The researcher used a descriptive research design. The researcher of this study was familiar with the aspects being studied but wanted an in-depth understanding of the relationship natures of the study valuable which made this research design appropriate. According to Cooper & Schindler (2008), descriptive research provides an accurate picture of the study variables which helps address the research question.

3.3 Population

This is a pool of events, individuals or objects that share common features that one would want to study (Mugenda and Mugenda ,2003). Burns & Burns (2008) defines a population as a sum of possible observations that can be achieved from a collection of persons, objects or events. In this study, the target population was the 56 insurance companies as at 2021 (IRA, 2021)(see appendix II). A census of the 56 insurance companies was undertaken.

3.4 Data Collection

This study used secondary data obtained from IRA and KNBS databases. Data on financial performance was sourced from annual audited financial statements of

insurance companies which are usually filed with the Insurance Regulatory Authority (IRA). This data could also have been obtained from insurance companies' websites. The researcher visited the Kenya National Bureau of Statistics' website to obtain data on inflation. The data covered 5 years from 2016 to 2020. The specific data that was collected from all these sources was: monthly inflation rates, net profits, net premium, total capital, total revenue, total assets and management expenses. All these were captured in a data collection sheet as shown in appendix 1.

3.5 Diagnostic Tests

In order to ensure viability of the data model, various diagnostic tests were conducted. The researcher ensured stationarity of statistical results. To ensure this, a stationarity test was done by running a run sequence plot. To ensure residuals had a normal distribution the researcher conducted a test for normality using Kolmogorov-Smirnov test. The Durbin-Watson statistic was used to measure autocorrelation. According to Khan (2008), autocorrelation helps to find out whether a time series will be similar if conducted in between successive intervals of time.

When two predictor variables become correlated it becomes difficult to interpret results, this situation is referred to as multicollinearity. The determinant of correlation matrices was used as a test for multicollinearity which ranges from zero to one. Orthogonal predictor variable indicates that for a complete linear dependence to be ascertained between the variables, the determinant should remain one while it is at zero and multicollinearity increases as it moves closer to zero. Lastly, an F-statistic in ANOVA was also conducted.

3.6 Data Analysis

After data collection, the researcher arranged the data in such a manner that the

research objectives were achieved. Statistical Package for Social Sciences (SPSS) was used to analyze data. The researcher then proceeded to conduct a descriptive and a multivariable regression analysis. Measures of central tendency and measures of variability were done under descriptive analysis. A multiple regression analysis was done to ascertain the relationship between the predictor variables and the dependent variable as used by Kobia (2018) and Nyamu (2016). This enabled the researcher to incorporate all control variables in the analysis together with the independent variable and test their joint influence on the dependent variable (Waller, 2008). The results indicated the extent inflation predicted financial performance while holding capital adequacy, firm's size, management efficiency, liquidity and underwriting risk. Both correlation and regression analysis were used as inferential tests. Correlation helped in determining how positively or negatively associated the predictor variables were to the dependent variable.

3.6.1 Analytical Model

The following multiple linear regression model will be applied to analyze the data:

$Y= \beta_0 + \beta_1X_1+ \beta_2X_2+ \beta_3X_3+ \beta_4X_4+\beta_5X_{5+}\beta_6X_6\varepsilon.$

Where

Y = Financial performance and will be measured by return on assets

β_0 =y intercept.

β_1, $\beta_{2,}\beta_{3,}$ $\beta_{4,}\beta_5$and β_6=regression slopes

X_1 = Inflation rate as measured by CPI

X_2 =Capital adequacy as measured by the ratio of total capital to total assets

X_3 =Insurance firm's size as measured by the natural logarithm of the total assets

X_4 = Management efficiency as measured by management expenses to total

revenue

$X_{5=}$ Liquidity as measured by current assets by current liabilities

$X_{6=}$ Underwriting Risk as measured by claims incurred by premium earned

ε =error term

3.6.2 Tests of Significance

Inorder to find out the statistical significance of the individual parameters the researcher conducted various parametric tests. Both the t-test and F-test were used at a 95% confidence level. The researcher conducted an F-test at a 95% confidence level to find out the significance of the regression model. This was done by calculating the ANOVA. The t-test on the other hand, was conducted at a 95% confidence level to test the level of significance of the study coefficients.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The chapter deals with presenting the analysis of findings depending on results from the key objectives formulated and analyzed on the effects of inflation on financial performance of insurance companies in Kenya. The findings and interpretation of the secondary data collected from KNBS and IRA has been summarized in this chapter.

4.2 Descriptive Statistics

This will focus on key variables in the study including the mean, maximum, minimum and standard deviation. This will help to descriptively understand the effect of inflation on an insurer's financial performance. A summary of the mean, maximum, minimum and standard deviation of each variable has been represented by Table 4.1. This was done via SPSS for a period of five years spanning from 2016 to 2020.

Table 4.1 Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	279	-.3776	.3033	.014429	.0727516
Inflation	279	4.6900	8.0100	5.929892	1.1663161
FirmSize	279	5.6235	8.0159	6.681510	.5093984
CapitalAd	279	.0025	.9326	.161289	.1309932
MgtEff	279	.0156	1.7696	.321424	.2119014
Liquidity	279	.2736	35.5336	4.935717	5.3585165
UnderwtgRisk	279	.0102	10.3183	.477020	.6765000
Valid N (listwise)	279				

Source: Research findings (2021)

According to Table 4.1, return on assets has a positive mean which means that insurance companies remained profitable on average for the five years. The standard deviation on ROA is also minimal meaning there are minimal variations between financial performance of individual companies. Liquidity and underwriting risk have standard deviations that are very high. This shows there is a great disparity in how insurance companies manage their cash and claims.

4.3 Diagnostic Tests

In this section are presented the various diagnostic tests used to ensure the model assumptions which were highlighted in chapter three are adhered to. The results of the following diagnostic tests as presented in the table below test for multicollinearity, autocorrelation, stationarity and normality. This was done by presuming a 5% significance level.

4.3.1 Multicollinearity Tests

Multicollinearity is said to exist when one or more predictor variables are strongly correlated. Williams, et al. (2013) explains that the presence of high interrelationship of predictor variables translates to multicollinearity. This study thus utilized the Variance Inflation Factor (VIF) tests to assess Multicollinearity state and the outcome is as presented in the table below:

Table 4.2: Multicollinearity Test

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
Inflation	0.993	1.007
FirmSize	0.553	1.808
CapitalAd	0.505	1.979
MgtEff	0.611	1.637
Liquidity	0.951	1.052
UnderwtgRisk	0.967	1.034
a. Dependent Variable: ROA		

Source: Research Findings (2021)

We used VIF value and Tolerance to check for multicollinearity. VIF values below 5 and Tolerance values that exceed 0.2 indicate absence of multicollinearity. From the table above, VIF values are less than 5 and tolerance values greater than 0.2. This clearly suggests absence of multicollinearity.

4.3.2 Normality Tests

This was done using the Kolmogorov-Smirnov test and Shapiro-Wilk test at a 95% confidence interval. See Table 4.3 for the tests' output. Our null hypothesis indicated that the data was normally distributed. Since the p value in both tests of the majority of variables is more than the α (0.05), then the null hypothesis is not rejected. Hence the data series of all the variables is normally distributed.

Table 4.3: Normality Test

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Inflation	Statistic	df	Sig.	Statistic	df	Sig.
ROA	4.6900	.078	61	.200*	.978	61	.339
	5.2400	.102	60	.193	.980	60	.410
	5.4000	.114	57	.063	.957	57	.040
	6.3000	.205	60	<.001	.848	60	<.001
	8.0100	.206	61	<.001	.890	61	<.001

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Source: Research findings (2021)

4.3.3 Autocorrelation Test

The researcher used the Durbin-Watson statistic to test for autocorrelation.The results gave a value of 1.786 as shown in Table 4.4. The Durbin-Watson statistic gives results that range from 0 to 4. For variables that have no correlation , usually the statistic gives a value of 2. However, if the values fall between 0 and 2, then there is said to be autocorrelation. If the values exceed 2 , then negative autocorrelation is said to exist between the variables.Field (2009) nonetheless, thinks that values that exceed 3 and those less than 1 may raise concern. In this case, since our data gave a result near to 2 then there is no autocorrelation.

Table 4.4: Autocorrelation Test

Model Summary[b]

Model	R	R Square	Adjusted R	Std. Error o	Change Statistics	Durbin-Watson
					R Square Change	
1	.305[a]	0.093	0.073	0.0700509	0.093	1.786

a. Predictors: (Constant), UnderwtgRisk, CapitalAd, Liquidity, Inflation, MgtEff, FirmSize

b. Dependent Variable: ROA

Source: Research findings (2021)

4.3.4 Stationarity Test

Usually, before performing regression analysis it is important to check whether the variables are stationary or non-stationary. Otherwise, use of stationary series can give false regression results. To check for stationarity, a unit root test was done using the Augmented Dickey-Fuller (ADF). Results as per Table 4.5 indicated that the variable was stationary at a 5% significance level.

Table 4.5: Unit Root Tests

Variable	ADF	5% Level	Prob	Comment
ROA	-3.643547	-3.430328	0.0202	Stationary
Inflation	-4.152276	-3.430328	0.0083	Stationary
Firm Size	-3.412157	-3.430328	0.0420	Stationary
Management efficiency	-2.98997	-2.91452	0.0043	Stationary
Liquidity	-2.67574	-1.53674	0.0381	Stationary
Capital Adequacy	-3.453231	-2.23456	0.0027	Stationary
Underwriting Risk	-3.387451	-1.22754	0.0031	Stationary

Source: Research findings (2021)

4.4 Correlation Analysis

This analysis helps us to know the extent of the relationship between two variables. A result closer to +1 or -1 is said to depict a strong positive and negative correlation respectively. Pearson correlation was used in this study to analyze the effect of

inflation on financial performance. A two tailed test was done at a 95% confidence level and the results have been displayed in Table 4.6.

Inflation had a positive and statistically insignificant correlation in relation to ROA as shown by (r = .052, p = .391). Firm size revealed a positive and insignificant association to ROA as demonstrated by (r = .112, p = .061). Capital adequacy and Management Efficiency had a negative and significant association with financial performance as shown by (r = -.215, p =.001) and (r = -.286, p = .001) respectively. Liquidity and underwriting risk exhibited a positive association with financial performance; however, the correlation was insignificant since the p values exceeded 0.05.

Table 4.6: Correlation Analysis

Correlations

		ROA	Inflation	FirmSize	CapitalAd	MgtEff	Liquidity	UnderwtgRisk
ROA	Pearson Correlation	1	.052	.112	-.215**	-.286**	.013	.018
	Sig. (2-tailed)		.391	.061	<.001	<.001	.832	.764
	N	279	279	279	279	279	279	279
Inflation	Pearson Correlation	.052	1	-.046	-.004	-.013	.000	-.039
	Sig. (2-tailed)	.391		.441	.952	.833	.995	.517
	N	279	279	279	279	279	279	279
FirmSize	Pearson Correlation	.112	-.046	1	-.631**	-.483**	-.123*	-.075
	Sig. (2-tailed)	.061	.441		<.001	<.001	.040	.210
	N	279	279	279	279	279	279	279
CapitalAd	Pearson Correlation	-.215**	-.004	-.631**	1	.576**	.034	-.002
	Sig. (2-tailed)	<.001	.952	<.001		<.001	.572	.974
	N	279	279	279	279	279	279	279
MgtEff	Pearson Correlation	-.286**	-.013	-.483**	.576**	1	-.100	-.101
	Sig. (2-tailed)	<.001	.833	<.001	<.001		.094	.093
	N	279	279	279	279	279	279	279
Liquidity	Pearson Correlation	.013	.000	-.123*	.034	-.100	1	.019
	Sig. (2-tailed)	.832	.995	.040	.572	.094		.756
	N	279	279	279	279	279	279	279
UnderwtgRisk	Pearson Correlation	.018	-.039	-.075	-.002	-.101	.019	1
	Sig. (2-tailed)	.764	.517	.210	.974	.093	.756	
	N	279	279	279	279	279	279	279

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Research findings (2021)

4.5 Regression Analysis

A regression analysis was conducted at a 5% significance level. This was done to show the nature of the relationship between the dependent variable and the six independent variables chosen for this study. This has been summarised in the subsections below.

4.5.1 Model Summary

Table 4.7: Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R	Std. Error o	Change Statistics	Durbin-Watson
					R Square Change	
1	.305[a]	0.093	0.073	0.0700509	0.093	1.786

a. Predictors: (Constant), UnderwtgRisk, CapitalAd, Liquidity, Inflation, MgtEff, FirmSize

b. Dependent Variable: ROA

Source: Research findings (2021)

Table 4.7 shows an R-square value of 0.093. This implies that 9.3 % of the changes in financial performance of insurance companies are attributed to changes in inflation, firm size, liquidity, management efficiency, underwriting risk and capital adequacy. Other factors that were not captured in the study contribute to 90.7% of the variations in financial performance. The correlation coefficient (R) in the study is 0.305. Since the value is below 0.50 the variables have a weak association.

4.5.2 ANOVA

Table 4.8 summarizes the results of the ANOVA. The F-test helped establish whether the model was significant to conduct the study.

Table 4.8: ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.137	6	.023	4.641	<.001[b]
	Residual	1.335	272	.005		
	Total	1.471	278			

a. Dependent Variable: ROA

b. Predictors: (Constant), UnderwtgRisk, CapitalAd, Liquidity, Inflation, MgtEff, FirmSize

Source: Research findings (2021)

The results depicted above indicate a significant relationship between ROA and the predictor variables F (6, 272)= 4.641,p<0.05).

4.5.3 Coefficients of the Regression Model

This study used a t- test at a 5% significance level to ascertain whether the variables were significant in explaining variations in the financial performance of insurance companies. A P- value that was below 0.05 indicated that the predictor variable had a significant relationship with the dependent variable while a P-value that exceeded 0.05 indicated the contrary. Table 4.9 gives a summary of the results..

Table 4.9: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.130	0.085		1.520	0.130
	Inflation	0.003	0.004	0.043	0.741	0.459
	FirmSize	-0.013	0.011	-0.093	-1.203	0.230
	CapitalAd	-0.067	0.045	-0.121	-1.495	0.136
	MgtEff	-0.091	0.025	-0.264	-3.573	0.000
	Liquidity	0.000	0.001	-0.021	-0.352	0.725
	UnderwtgRisk	-0.001	0.006	-0.014	-0.234	0.815

a. Dependent Variable: ROA

Source: Research findings (2021)

Regression coefficients were used to indicate both the extent and direction of the relationship amongst the dependent variable and independent variables. The results revealed that inflation has a positive and insignificant influence on financial performance of insurance companies. Management efficiency had a negative statistically significant influence on financial performance while liquidity had no influence on the dependent variable as its beta coefficient was 0.00. The regression coefficients indicated that an increment in a unit of inflation would lead to an increase in performance by 0.003 while firm size, capital adequacy, underwriting risk and management efficiency would lead to a decrease in financial performance by -0.013, -0.067 , -0.001 and -0.091 respectively. The findings further revealed that capital adequacy, firm size and underwriting risk had an insignificant negative impact on financial performance. The constant coefficient was 0.130 meaning that if the other variables registered nil entries, the dependent variable would be equal to it.

The below equation was thus established:

$$Yi = 0.130 + 0.003 X1 - 0.067X2 - 0.013X3 - 0.091X4 + 0.000X5 - 0.001X6$$

Where;

Yi= Return on Assets X1 = Inflation, X2 = Capital adequacy, X3=Firm Size, X4= Management Efficiency, X5 = Liquidity, X6= Underwriting Risk

4.6 Discussion of Research Findings

The aim of the study was to find out the effect of inflation on the financial performance of insurance companies in Kenya.. Inflation was the independent variable while liquidity, capital adequacy, management efficiency, firm size and underwriting risk were the control variables in this study. The response variable was financial performance of insurance companies measured by ROA. Diagnostic tests were conducted to determine whether the model was suitable in predicting financial performance. A regression analysis was also conducted in order to examine the extent and direction the predictor variable affected the dependent variable .

The Pearson correlation results indicated that there is a positive and statistically insignificant relationship between inflation rate and financial performance.. There was also a positive and insignificant association amongst firm size and insurers' financial performance. Further capital adequacy and management efficiency had a negative and significant association with financial performance. Liquidity and underwriting risk had a positive but insignificant association with financial performance.

According to the model summary, R square is given by 0.093. This means that the independent variables: inflation, firm size, capital adequacy, management efficiency, liquidity and underwriting risk explains 9.3% of variations in the dependent variable. The remaining 90.7% changes in performance is explained by other factors that were not studied in this model. The model was considered fit to predict how financial performance is affected by changes in the independent variables at a 95% confidence interval. The p-value of the F statistic was 0.001, with the F-value at 4.641.

This study agrees with Nyamu (2016) whose study established that inflation has a positive correlation with insurance firms' financial performance. The researcher was

finding out the relationship between macroeconomic factors and financial performance of insurance companies in Kenya. Data was collected from a population of 50 insurance companies. The findings highlighted that both inflation and GDP growth rate have a positive insignificant effect on the financial performance.

On the contrary, this study differs with that of Mwangi (2017) who researched on a similar topic to that of Nyamu (2016) and wanted to find out whether macroeconomic factors affected financial performance Kenyan insurance companies. A descriptive research design was used and secondary data was collected from IRA for four years; 2012-2015. The research focused on insurance firms listed in the NSE. The study concluded that inflation rates are negatively correlated to an insurance firm‘s financial performance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This study was done in order to determine the effect of inflation on the financial performance of insurance companies in Kenya. This section provides an overview of the first four chapters, gives a conclusion of the study and points out some of the limitations the researcher faced when undertaking the study. Moreover, the chapter gives recommendations to insurers, policy makers and future researchers.

5.2 Summary of Findings

This research aimed at establishing the effect of inflation on financial performance of insurance companies in Kenya. Inflation as the independent variable was given by the CPI. The control variables were five: capital adequacy which was measured by dividing total capital by total assets, liquidity was calculated by obtaining the ratio of current assets to current liabilities, management efficiency was represented by the ratio of management expenses to total revenue, bank size was calculated by obtaining the natural logarithm of total assets and underwriting risk represented by the ratio of claims incurred to premium earned. Financial performance was the dependent variable and was represented by calculating the return on assets. Theoretical foundations and empirical reviews were reviewed. This gave an overview of past studies and theories related to the study variables. This helped in the understanding of the relationship between inflation and financial performance. The researcher further came up with a conceptual framework that clearly depicted the expected relationship between the dependent variable, the independent variable and control variables.

This study used a descriptive research design. The population of the study consisted of all the 56 insurance companies which were operational as at 31st December 2020. However, data was captured from 49 insurance companies that had data for the five years (2016-2020). This was an 87.5% response rate. The researcher obtained insurance data from IRA and inflation data from KNBS covering a period of 5 years (2016-2020). The researcher conducted various analysis that helped in interpreting the data. This included descriptive analysis, regression analysis and correlation analysis. In order to ensure the data was fit for analysis, the researcher conducted various diagnostic tests. Correlation analysis was used to test the strength of the relationship between the study variables and a regression analysis determined the nature of the relationship between the independent variables and the dependent variable. The analysis was conducted via SPSS software version 28.

The study used Pearson correlation to conduct a correlation analysis. The results indicated that there is a positive and statistically insignificant relationship between inflation rate and financial performance. There was also a positive insignificant relationship between firm size and insurers' financial performance. Further capital adequacy and management efficiency had a negative and significant association with financial performance. Liquidity and underwriting risk had a positive insignificant relationship with financial performance.

The coefficient of determination (R square) usually indicates the proportion of the dependent variable that is affected by changes in the independent variables. As per the model summary results, R square was 0.093. This meant that the independent variables in the study accounted for 9.3% of the variations in financial performance The other factors not captured in the study accounted for the remainder (90.7%).

Correlation analysis results showed a correlation coefficient of 0.305 (R=0.305). This indicated a weak relationship between the study variables and financial performance of insurance companies. The ANOVA test result showed a P-value of 0.001 at 5% significance level. This made the model fit to explain the relationship between the study variables.

The regression coefficients indicated that an increment in a unit of inflation would lead to increase in performance by 0.003 while firm size, capital adequacy, underwriting risk and management efficiency would lead to a decrease in financial performance by -0.013, -0.067 , -0.001 and -0.091 respectively. The findings further revealed that capital adequacy, firm size and underwriting risk had an insignificant negative impact on financial performance. The constant coefficient was 0.130 meaning that if the other variables registered nil entries, the dependent variable would be equal to it.

5.3 Conclusion

The study findings show that financial performance of insurance companies is impacted by inflation, firm size, liquidity, capital adequacy, management efficiency, and underwriting risk. According to this research, when there is a rise in inflation financial performance also increases though insignificantly. This shows that insurance companies have adopted strategies that help curb inflation. On the other hand, as per the results, capital adequacy, underwriting risk and firm size were negatively correlated to financial performance of insurance companies. Though the relationship was not strong, a unit of increase of the three variables led to a decrease in financial performance. The research showed the statistical significance of management

efficiency and thus found that it has a negative effect on financial performance. On the other hand, liquidity had no influence on the dependent variable as its beta coefficient was 0.00.

This study concluded that inflation, capital adequacy, management efficiency, firm size and underwriting risk to a larger extent have a hand in influencing the financial performance of insurance companies in Kenya. This was reflected in the model summary that indicated that 9.3% of the changes in financial performance are caused by the six variables. The other factors not included in the study accounted for the remaining 90.7%.

This study was in agreement with that of Nyamu (2016) whose study established that inflation has a positive correlation with insurance firms' financial performance. The researcher was finding out the relationship between macroeconomic factors and financial performance of insurance companies in Kenya. Data was collected from a population of 50 insurance companies. The findings highlighted that both inflation and GDP growth rate have a positive insignificant effect on the financial performance.

On the contrary, this study differs with that of Mwangi (2017) who researched on a similar topic to that of Nyamu (2016) and wanted to find out whether macroeconomic factors affected financial performance Kenyan insurance companies. The researcher adopted a descriptive research design. Secondary data was collected from IRA for four years; 2012-2015. The research focused on insurance firms listed in the NSE. The study concluded that inflation rates are negatively correlated to an insurance firm's financial performance.

5.4 Recommendations of the Study

Based on the study findings, the researcher has come up with recommendations. The study indicated that there exists a positive and insignificant influence of inflation on financial performance of insurance companies. This shows that insurance companies are adjusting their premium accordingly to match with inflationary trends. It is recommended that underwriters should continue to price their premiums accordingly to cater for inflation. Additionally, insurance companies should hedge their funds such that during periods of high inflation, their investments will not be eroded. The Central Bank of Kenya should also control the level of inflation by putting in place effective monetary policies.

In the study findings, it was discovered that the management efficiency had a significant negative relationship with financial performance. This shows that there could be a problem with the quality of staff. Therefore, it is recommended that insurers should invest in their personnel in order to ensure that their input causes a positive input to ROA. This includes training of staff and recruitment of qualified personnel.

5.5 Limitations of the Study

This study focused on six predictor variables. These represent a fraction of factors that can influence financial performance of insurance companies in Kenya. Some factors are internal such as claim management, capital structure, firm's age and leverage while others are external. External factors include political instability, interest rates, exchange rates, GDP growth amongst many others. .

This study solely focused on secondary data and disregarded use of primary data. This left out qualitative information that would have given more concrete results. Including

questionnaires, interviews and focus group discussions would have better explained the relationship between inflation and financial performance.

5.6 Suggestions for Further Research

In this study, data captured was mainly secondary. Future studies should incorporate primary data captured from interviews with vital respondents in the insurance companies. As a result, fine details that would explain inflation and financial performance of insurance companies would be noted.

Not all variables that affect financial performance of insurance companies were captured in the study. Future studies should add more variables that are likely to affect financial performance of insurance companies. This includes : debt management, capital structure, political instability, claims management among others. This will help policy makers to lay out policies that would improve financial performance.

This study covered a period of the last five years. Future studies can increase the number of years to ten or even twenty. This will give a more clearer picture of how the variables in this study impact financial performance since there will be more data to analyse. Additionally, a longer study period enables the researcher to note business cycles including recessions and booms.

Lastly, the researcher studied all insurance companies. However, the insurance industry has life insurance companies, general insurance companies and composite insurance companies. Future studies should focus on each of the three types of insurance companies. This will help in understanding how variables in the study impact them and whether the impact is significantly different.

REFERENCES

Abdeljawad, I., & Dwaikat, L. M. (2017). The determinants of profitability of insurance companies in Palestine. *Faculty of Economics and Social Sciences,* https://repository.najah.edu/bitstream/handle/20.500.11888/14257/

Ackley, G. (1978). "The Costs of Inflation," American Economic Review, *American Economic Association, vol. 68*(2), pages 149-154, May.

Adams, M. & Buckle, M. (2003).The determinants of corporate financial Performance in the Bermuda Insurance Market.*Applied Financial Economics, 13*(2), 133-143

Ahlgrim, K., D'Arcy, S. (2012): The Effect of Deflation or High Inflation on the InsuranceIndustry. *Working Paper*, Illinois State University, University of Illinois at Urbana-Champaign.

Ajao, M. G., & Ogieriakhi, E. (2018). Firm specific factors and performance of insurance firms in Nigeria. *Amity Journal of Finance, 3*(1), 14-28

Almajali, Y.A., Alamro, S.H., & Al-Soub, Y.Z (2012). Factors affecting financial performance of Jordanian insurance companies listed at Amman stock exchange. *Journal of Management Research, 4*(2), 91-101

Al-Shami, H. A. (2013). Universiti Utara Malaysian Electronic Theses and Dissertation. Tratto il giorno Maj 13, 2015 da Universiti Utara Malaysian: etd.uum.edu

Amato, L. &Burson, T. (2007). The effects of firm size on profit rates in the financial service, *Journal of Economic and Economic Research, 8*(1), 61- 81

Asinya, F. A & Uche W. J. (2018). Impact of Inflation on Insurance Claims in Nigeria: An Ardl Bounds F-Test Approach, *Journal of Economics and Finance, 9*(6), 43-53.

Athanasoglou, P., Brissimis, S., & Delis, M. (2005). Bank-Specific, industry-specific and macroeconomic determinants of Bank profitability. *Bank of Greece,* No 25 .

Athanasoglou, P., Sophocles, B., & Matthaois, D. (2009). Bank-Specific, industry-specific and macroeconomic determinants of Bank profitability. *Journal of International Financial Markets, Institution and Money.* [Online] 121-136.

Baba, F., & Nasieku, A.M. (2001). What do financial intermediaries do? *Journal of Banking & Finance, 25*(3), 271–294

Bayyurt, N. (2007). The Performance of Turkish Manufacturing Firms in Stable And Unstable Economic Periods, *South East European Journal of Economics and Business, Sciendo*, *2*(2), 43-52.

Bonn, I. (2000).Staying on Top: Characteristics of Long-Term Survival. *Journal of Organizational Change Management*, *13*(1), 32-48.

Boyd, J.H., Ross, L. and Smith, B.D. (2000), 'The Impact of Inflation on Financial Sector Performance', *Journal of Monetary Economics, 47,* 221–48.

Burns, N. & Burns, S. (2008). *The Practice of Nursing Research: Conduct, Critique and Utilization*: 5th Edition: St Louis, Elsevier Saunders.

Cecchetti, S. (2000). Making Monetary Policy: Objectives and Rules. *Oxford Review of Economic Policy*, *16*(4), 43-59. Retrieved August 23, 2021, from http://www.jstor.org/stable/23606599

Chaharbaghi, L., & Lynch, P. (1999). Revisiting the Concept of Sustainable Competitive Advantage: Perceptions of Managers in Malaysian MNC

Chen, R., & Wong, K. A. (2004). The Determinants of Financial health of Asian Insurance Companies. *The Journal of Risk and Insurance, 71*(3), 469-99.

Cooper, R., & Schindler, S. (2008). *Business research methods.* New York: McGrawhill

Fatihudin, D. & Mochklas, M. (2018). How Measuring Financial Performance. *International Journal of Civil Engineering and Technology. 9*.

Friedman, M. (1970). Counter-Revolution in Monetary Theory. *Wincott Memorial Lecture*, Institute of Economic Affairs, Occasional paper 33.

Hall, R. E. (1986). "Market Structure and Macroeconomic Fluctuations," Brookings Papers on Economic Activity, 285-338.

Hall, R. E. (1988), "The Relationship Between Price and Marginal Cost in U.S. Industry," *Journal of Political Economy, 96* , 921-947.

Hanafi, & Halim. (2012). Financial Statement Analysis.Yogyakarta: UPPAMP YKPN.

Harvey, J. T. (2011). “Money Growth Does Not Cause Inflation!” *Forbes*, May 14, 2011.https://www.forbes.com/sites/johntharvey/2011/05/14/money-growth-does-not-cause-inflation/#5c3b743342f5

Hussain, I. (2015). Macro Economy and Profitability of Insurance Companies: A Post Crisis Scenario in Pakistan. *Pakistan Business Review, 17*, 243-263.

Illaboya, O. J., & Ohiokha, I. F. (2016). Firm age, size and profitability dynamics: A test of learning by doing and structural inertia hypotheses. *Business and Management Research*, *5*(1), 29 39.

Karl, Kurt & Holzheu, Thomas & Laster, David. (2010). *The impact of inflation on insurers*. sigma. 2010.

Khan, J. A. (2008).*Research Methodology*. New Delhi. APH Publishing Corporation

Kigen,W. K. (2014). The effect of firm size on profitability of insurance companies in Kenya. *An unpublished Masters project* from The University of Nairobi.

Kiio, P. N. (2014). The relationship between liquidity and profitability of insurance companies in Kenya. *An unpublished Masters project* from The University of Nairobi

Kobia, A.M. (2018).Effect of Inflation rate on Profitability of Commercial Banks in Kenya. *An unpublished Masters project* from The University of Nairobi

Krivo, R. (2009). "An Update to D'Arcy's 'A Strategy for Property-Liability Insurers in Inflationary Times'," *Casualty Actuarial Society E-Forum*. http://www.casact.org/pubs/forum/09spforum/04Krivo.pdf

Lee, J. (2009). Does The Size Matter in Firm Performance? Evidence from US Public Firms, *Internal Journal of the Economic of Business*, 16(2), 199- 203

Liargovas, P. & Skandalis K. (2008).Factors affecting a firm's financial performance. *The case of Greece,* Athens.University of Peloponnese Press.

Malik, H. (2011). Determinants of Insurance Companies Profitability:An Analysis of Insurance Sector of Pakistan. *Academic Research International*, Volume 1, Issue 3.

Mboga, C.K.(2015).Effect of interest rates on the financial performance of insurance companies in Kenya. *An unpublished masters project* from The University of Nairobi.

Mugenda, O. M., & Mugenda, A. G. (2003). *Research methods: Qualitative and Quantitative Approaches*. Nairobi: Acts Press.

Muthoni, J.N. (2012).Effect of Inflation on Investment among Insurance Companies in Kenya. *An unpublished Masters project* from The University of Nairobi.

Mwangi, G. (2017).Effect of Macroeconomic Variables on Financial Performance of Insurance Companies in Kenya. *An unpublished Masters project* from The United States International University-Africa.

Mwangi, M., & Murigu, J. W. (2015). The Determinants of Financial Performance in General Insurance Companies in Kenya. *European Scientific Journal, ESJ, 11*(1).

Njoroge, A. (2014). Relationship between capital structure and financial performance. *An unpublished masters project* from the University of Nairobi

Nyamita, M. O. (2014). Factors Influencing Debt Financing and Its Effects on Financial Performance of State Corporations in Kenya. *Doctorate Thesis.* Durban University of Technology.

Nyamu, F.M. (2016). The Effect of Macroeconomic Factors on Financial Performance of Insurance Firms in Kenya. *An unpublished Masters project* from The University of Nairobi.

Omondi, O. M. & Muturi, W. (2013).Factors affecting the financial performance of listed companies at the Nairobi Securities Exchange in Kenya.*Research Journal of Finance and Accounting,* 4 (15), 99 – 104.

Oner, C. (2010). Back to Basics: What Is Inflation?, *Finance & Development, 0047*(001), A017. Retrieved Aug 23, 2021, from https://www.elibrary.imf.org/view/journals/022/0047/001/article-A017-en.xml

Pantelous, A., & Passalidou, E. (2017). Optimal strategies for a non-linear premium-reserve model in a competitive insurance market. *Annals of Actuarial Science, 11*(1), 1-19. doi:10.1017/S1748499516000129

Qayyum, A. (2006) , Money, Inflation, and Growth in Pakistan. *Pakistan Development Review*, Vol. 45, No. 2, pp. 203-212, Summer 2006, Available at SSRN: https://ssrn.com/abstract=966103

Simiyu, C. N. & Ngile, L. (2015). Effect of Macroeconomic Variables on Profitability of Commercial Banks Listed in the Nairobi Securities Exchange. *International Journal of Economics, Commerce and Management*, 3(4), 1-15

Singla, D. H. K. (2011). Does Firm Size Affect Profitability? *An Empirical Investigation Of Indian Textile Industry*. Paradigm, 15(1–2), 18–25. https://doi.org/10.1177/0971890720110104

Sorensen, B., & Stuart, E. (2000).Age, obsolescence, and organizational innovation.*Academy of Management Journal*, 25(3), 27-38

Sowell, T. (2004), *Basic Economics: A Citizen's Guide to the Economy*, Basic Books: New York.

Waller, N. (2008). *Fungible Weights in Multiple Regression.* Psychometrika, 73, 691-703.

Wamucii, J.C. (2010). The relationship between inflation and financial performance of commercial banks in Kenya. *Unpublished MBA Thesis,* University of Nairobi.

APPENDICES

Appendix I: Data Collection Form

Company Name_____.

YEAR	ROA	FIRM SIZE	CAPITAL ADEQUACY	MANAGEMENT EFFICIENCY	LIQUIDITY	UNDERWRITING RISK
2016						
2017						
2018						
2019						
2020						

INFLATION

	2016	2017	2018	2019	2020
JANUARY					
FEBRUARY					
MARCH					
APRIL					
MAY					
JUNE					
JULY					
AUGUST					
SEPTEMBER					
OCTOBER					
NOVEMBER					
DECEMBER					

Appendix II: Licensed Insurance Companies

1. AAR Insurance Kenya Limited
2. AIG Kenya Insurance Co Ltd
3. Africa Merchant Assurance Co. Ltd
4. Allianz Insurance Co of Kenya Ltd
5. APA Insurance Limited
6. APA Life Assurance Limited
7. ABSA Life Assurance K Ltd
8. Britam General Ins. Co. (K) Ltd.
9. Britam Life Assurance Co. Ltd.
10. Capex Life Assurance Limited
11. CIC General Insurance Limited
12. CIC Life Assurance Ltd
13. Corporate Insurance Co. Ltd
14. Directline Assurance Co Ltd
15. Fidelity Shield Insurance Co Ltd
16. First Assurance Company Ltd
17. GA Insurance Limited
18. GA Life Assurance Ltd
19. Geminia Insurance Company Ltd
20. Geminia Life Insurance Company Ltd
21. ICEA LION General Insurance Co Ltd
22. ICEA LION Life Assurance Co Ltd
23. Intra Africa Assurance Co Ltd
24. Invesco Assurance Company Ltd

25. Jubilee Life Insurance Limited.

26. Jubilee Allianz General Insurance (K) Ltd.

27. Jubilee Health Insurance Ltd

28. Kenindia Assurance Co Ltd

29. Kenya Orient Insurance Ltd

30. Kenya Orient Life Assurance Ltd

31. Kussco Mutual Assurance Limited.

32. Liberty Life Assurance Kenya Ltd

33. Madison Life Insurance Company Ltd

34. Madison General Insurance Company Ltd

35. Mayfair Insurance Company Ltd

36. Metropolitan General Insurance Company Ltd.

37. Metropolitan Cannon Life Ass Ltd.

38. MUA Insurance (Kenya) Ltd.

39. Occidental Insurance Co Ltd

40. Old Mutual Life Assurance Co Ltd

41. Pacis Insurance Company Ltd

42. Pioneer Life Assurance Company Ltd

43. Pioneer General Insurance Ltd

44. Prudential Life Assurance K Ltd

45. Resolution Insurance Company Ltd.

46. Sanlam General Insurance Ltd

47. Sanlam Life Assurance Ltd

48. Tausi Assurance Company Ltd

49. The Heritage Insurance Company Ltd

50. Trident Insurance Company Ltd
51. UAP Life Assurance Limited
52. UAP Insurance Company Limited
53. Takaful Insurance of Africa Limited
54. The Monarch Insurance Co. Ltd.
55. The Kenyan Alliance Insurance Co Ltd
56. Xplico Insurance Limited

Source: IRA (2021)

Appendix III: Research Data

	Insurer	Year	ROA	Inflation Rate	FirmSize	Capital Adequacy	Management Efficiency	Liquidity	Underwriting Risk
1	AAR	2016	0.062	6.30	6.713	0.078	0.150	7.106	0.431
2	AAR	2017	-0.129	8.01	6.555	0.112	0.335	5.411	0.729
3	AAR	2018	-0.088	4.69	6.582	0.131	0.249	3.789	0.589
4	AAR	2019	0.188	5.24	6.605	0.124	0.320	2.790	0.287
5	AAR	2020	0.076	5.40	6.622	0.119	0.277	2.508	0.457
6	ABSA LIFE	2016	-0.266	6.30	6.211	0.277	0.372	0.360	0.114
7	ABSA LIFE	2017	0.028	8.01	6.448	0.249	0.355	1.564	0.395
8	ABSA LIFE	2018	0.038	4.69	6.523	0.210	0.379	1.559	0.193
9	ABSA LIFE	2019	-0.054	5.24	6.608	0.172	0.330	0.356	0.375
10	ABSA LIFE	2020	0.014	5.40	6.745	0.126	0.160	0.982	0.545
11	AIG	2016	0.079	6.30	6.624	0.107	0.316	1.205	0.384
12	AIG	2017	0.121	8.01	6.674	0.095	0.646	0.546	0.228
13	AIG	2018	0.109	4.69	6.709	0.088	0.853	0.873	0.115
14	AIG	2019	0.080	5.24	6.716	0.087	1.047	0.442	0.137
15	AIG	2020	0.125	5.40	6.637	0.138	0.969	1.020	0.112
16	ALLIANZ	2016	-0.084	6.30	6.030	0.933	1.463	12.055	0.083
17	ALLIANZ	2017	-0.149	8.01	6.074	0.844	1.001	1.118	0.259

18	ALLIANZ	2018	-0.142	4.69	6.127	0.746	0.927	2.070	0.233
19	ALLIANZ	2019	-0.031	5.24	6.308	0.659	0.573	0.951	0.241
20	ALLIANZ	2020	-0.034	5.40	6.218	0.811	0.452	0.991	0.366
21	AMACO	2016	-0.014	6.30	6.599	0.249	0.409	6.868	0.414
22	AMACO	2017	-0.007	8.01	6.588	0.255	0.443	6.143	0.591
23	AMACO	2018	0.012	4.69	6.530	0.291	0.492	4.572	0.394
24	AMACO	2019	-0.022	5.24	6.532	0.290	0.533	2.396	0.499
25	AMACO	2020	0.007	5.40	6.521	0.297	0.584	2.586	0.395
26	APA	2016	0.056	6.30	7.156	0.087	0.230	24.852	0.583
27	APA	2017	0.056	8.01	7.152	0.088	0.255	4.883	0.493
28	APA	2018	0.051	4.69	7.120	0.095	0.258	15.635	0.451
29	APA	2019	0.067	5.24	7.129	0.052	0.226	2.920	0.509
30	APA	2020	0.048	5.40	7.121	0.095	0.240	2.500	0.448
31	APA LIFE	2016	0.005	6.30	6.600	0.113	0.209	0.855	0.384
32	APA LIFE	2017	-0.010	8.01	6.671	0.117	0.162	5.110	0.342
33	APA LIFE	2018	-0.013	4.69	6.727	0.131	0.180	3.109	0.190
34	APA LIFE	2019	0.005	5.24	6.776	0.210	0.142	5.562	0.407
35	APA LIFE	2020	0.017	5.40	6.831	0.103	0.150	6.671	0.435
36	BRITAM GEN	2016	0.067	6.30	6.976	0.282	0.324	3.046	0.540
37	BRITAM GEN	2017	0.051	8.01	7.025	0.252	0.318	2.011	0.504

38	BRITAM GEN	2018	-0.004	4.69	7.017	0.256	0.361	1.887	0.502
39	BRITAM GEN	2019	-0.030	5.24	7.014	0.258	0.362	1.676	0.524
40	BRITAM GEN	2020	0.032	5.40	7.066	0.229	0.291	1.212	0.490
41	BRITAM LIFE	2016	0.082	6.30	7.723	0.017	0.136	3.115	0.312
42	BRITAM LIFE	2017	0.008	8.01	7.801	0.003	0.110	1.787	0.428
43	BRITAM LIFE	2018	-0.014	4.69	7.849	0.003	0.130	12.348	0.481
44	BRITAM LIFE	2019	0.048	5.24	7.943	0.005	0.105	1.859	0.260
45	BRITAM LIFE	2020	-0.023	5.40	7.990	0.004	0.103	1.464	0.368
46	CAPEX LIFE	2016	0.005	6.30	5.674	0.318	0.548	0.395	0.118
47	CAPEX LIFE	2017	-0.019	8.01	5.825	0.224	0.217	0.713	0.184
48	CAPEX LIFE	2018	-0.017	4.69	5.906	0.186	0.338	3.117	0.108
49	CAPEX LIFE	2019	-0.057	5.24	5.944	0.393	0.401	2.115	0.238
50	CAPEX LIFE	2020	0.000	5.40	5.975	0.365	0.381	2.630	0.212

51	CIC GEN	2016	0.000	6.30	7.079	0.142	0.280	8.894	0.538
52	CIC GEN	2017	0.029	8.01	7.059	0.148	0.250	7.472	0.554
53	CIC GEN	2018	0.056	4.69	7.055	0.150	0.204	15.740	0.597
54	CIC GEN	2019	0.028	5.24	7.081	0.141	0.208	9.200	0.614
55	CIC GEN	2020	0.017	5.40	7.105	0.134	0.238	6.684	0.602
56	CIC LIFE	2016	0.081	6.30	6.922	0.096	0.285	3.196	0.441
57	CIC LIFE	2017	0.011	8.01	7.012	0.078	0.269	3.328	0.419
58	CIC LIFE	2018	0.009	4.69	7.086	0.066	0.217	5.187	0.527
59	CIC LIFE	2019	0.010	5.24	7.167	0.054	0.270	4.127	0.476
60	CIC LIFE	2020	0.004	5.40	7.221	0.048	0.213	5.024	0.530
61	CORPORATE GEN	2016	0.030	6.30	5.962	0.437	0.470	3.070	0.480
62	CORPORATE GEN	2017	0.031	8.01	6.137	0.292	0.424	2.886	0.356
63	CORPORATE GEN	2018	-0.015	4.69	6.136	0.292	0.461	3.748	0.590
64	CORPORATE GEN	2019	-0.059	5.24	6.175	0.267	0.545	5.392	0.471
65	CORPORATE GEN	2020	-0.002	5.40	6.252	0.224	0.278	15.931	0.545
66	CORPORATE LIFE	2016	0.147	6.30	5.962	0.164	0.204	3.579	0.586
67	CORPORATE LIFE	2017	0.008	8.01	5.963	0.163	0.181	2.927	0.680

68	CORPORATE LIFE	2018	-0.066	4.69	5.967	0.162	0.198	9.585	0.039
69	CORPORATE LIFE	2019	-0.113	5.24	5.986	0.207	0.248	2.196	0.930
70	CORPORATE LIFE	2020	-0.116	5.40	5.984	0.208	0.319	2.088	1.027
71	DIRECT LINE	2016	0.036	6.30	6.714	0.058	0.305	19.403	0.554
72	DIRECT LINE	2017	0.027	8.01	6.791	0.049	0.276	16.220	0.628
73	DIRECT LINE	2018	-0.021	4.69	6.746	0.054	0.341	8.033	0.657
74	DIRECT LINE	2019	-0.096	5.24	6.745	0.054	0.253	1.206	0.682
75	DIRECT LINE	2020	-0.108	5.40	6.692	0.061	0.320	0.814	0.812
76	FIDELITY	2016	0.017	6.30	6.441	0.217	0.301	7.633	0.448
77	FIDELITY	2017	0.006	8.01	6.491	0.194	0.246	6.946	0.396
78	FIDELITY	2018	0.026	4.69	6.486	0.196	0.221	7.217	0.483
79	FIDELITY	2019	-0.014	5.24	6.492	0.193	0.219	3.821	0.547
80	FIDELITY	2020	-0.027	5.40	6.470	0.203	0.270	3.965	0.571
81	FIRST ASS. GEN	2016	-0.029	6.30	6.712	0.128	0.319	2.964	0.500
82	FIRST ASS. GEN	2017	-0.003	8.01	6.669	0.141	0.458	1.190	0.343

83	FIRST ASS. GEN	2018	-0.064	4.69	6.670	0.141	0.447	1.046	0.406
84	FIRST ASS. GEN	2019	0.040	5.24	6.679	0.170	0.374	1.092	0.356
85	FIRST ASS. GEN	2020	0.021	5.40	6.676	0.171	0.322	2.186	0.329
86	FIRST ASS. LIFE	2016	0.034	6.30	5.623	0.357	0.300	5.666	0.123
87	FIRST ASS. LIFE	2017	0.030	8.01	5.690	0.306	0.348	3.262	0.082
88	FIRST ASS. LIFE	2018	0.027	4.69	5.685	0.310	0.231	3.321	0.242
89	FIRST ASS. LIFE	2019	0.036	5.24	5.684	0.311	0.325	4.395	0.148
90	GA	2016	0.087	6.30	6.932	0.082	0.219	1.448	0.300
91	GA	2017	0.108	8.01	6.984	0.073	0.194	1.595	0.286
92	GA	2018	0.112	4.69	7.019	0.067	0.226	1.773	0.294
93	GA	2019	0.117	5.24	7.062	0.061	0.225	1.520	0.270
94	GA	2020	0.101	5.40	7.111	0.077	0.205	1.610	0.290
95	GA LIFE	2016	0.003	6.30	6.615	0.049	0.016	14.910	0.172
96	GA LIFE	2017	0.007	8.01	6.777	0.033	0.017	3.759	0.204
97	GA LIFE	2018	0.007	4.69	6.892	0.026	0.027	3.490	0.048
98	GA LIFE	2019	0.008	5.24	7.046	0.018	0.018	3.432	0.210
99	GA LIFE	2020	0.001	5.40	7.178	0.013	0.017	6.008	0.253

100	GEMINIA	2016	0.055	6.30	6.610	0.135	0.192	5.368	0.419
101	GEMINIA	2017	0.077	8.01	6.702	0.109	0.161	7.786	0.433
102	GEMINIA	2018	0.059	4.69	6.756	0.097	0.197	6.403	0.482
103	GEMINIA	2019	0.065	5.24	6.795	0.088	0.270	5.996	0.543
104	GEMINIA	2020	0.046	5.40	6.842	0.087	0.213	4.101	0.587
105	GEMINIA LIFE	2016	0.303	6.30	5.966	0.162	0.043	0.948	0.195
106	GEMINIA LIFE	2017	0.002	8.01	6.032	0.139	0.218	8.376	0.371
107	GEMINIA LIFE	2018	-0.023	4.69	6.225	0.152	0.168	2.710	0.115
108	GEMINIA LIFE	2019	0.021	5.24	6.293	0.130	0.253	3.499	0.450
109	GEMINIA LIFE	2020	0.044	5.40	6.331	0.186	0.230	4.330	0.442
110	HERITAGE	2016	0.119	6.30	6.774	0.084	0.348	3.509	0.254
111	HERITAGE	2017	0.106	8.01	6.864	0.068	0.346	1.974	0.253
112	HERITAGE	2018	0.071	4.69	6.873	0.067	0.371	2.747	0.312
113	HERITAGE	2019	0.108	5.24	6.896	0.127	0.364	2.445	0.265
114	HERITAGE	2020	0.104	5.40	6.934	0.116	0.340	2.297	0.283
115	ICEA LION	2016	0.042	6.30	6.987	0.103	0.268	0.950	0.367
116	ICEA LION	2017	0.102	8.01	7.010	0.098	0.293	1.002	0.361
117	ICEA LION	2018	0.065	4.69	6.988	0.103	0.357	1.061	0.295

118	ICEA LION	2019	0.102	5.24	7.038	0.092	0.405	0.721	0.217
119	ICEA LION	2020	0.081	5.40	7.052	0.089	0.356	0.809	0.241
120	ICEA LION LIFE	2016	0.011	6.30	7.757	0.008	0.064	3.525	0.525
121	ICEA LION LIFE	2017	0.008	8.01	7.844	0.006	0.048	7.228	0.099
122	ICEA LION LIFE	2018	0.007	4.69	7.903	0.006	0.057	5.997	0.378
123	ICEA LION LIFE	2019	0.007	5.24	7.971	0.005	0.055	4.631	0.080
124	ICEA LION LIFE	2020	0.007	5.40	8.016	0.004	0.054	2.022	0.621
125	INTRA AFRICA	2016	0.024	6.30	6.244	0.228	0.306	18.082	0.454
126	INTRA AFRICA	2017	0.026	8.01	6.270	0.215	0.373	13.590	0.455
127	INTRA AFRICA	2018	0.019	4.69	6.280	0.263	0.351	35.534	0.436
128	INTRA AFRICA	2019	0.048	5.24	6.319	0.240	0.251	18.153	0.487
129	INTRA AFRICA	2020	0.031	5.40	6.301	0.300	0.336	14.141	0.574
130	JUBILEE	2016	0.059	6.30	7.142	0.144	0.164	4.316	0.476
131	JUBILEE	2017	0.153	8.01	7.117	0.153	0.207	12.720	0.487
132	JUBILEE	2018	0.107	4.69	7.138	0.146	0.214	3.071	0.446

133	JUBILEE	2019	-0.115	5.24	6.813	0.355	0.381	7.099	0.581
134	JUBILEE	2020	-0.019	5.40	6.764	0.398	0.472	5.707	0.544
135	JUBILEE LIFE	2016	0.032	6.30	7.720	0.010	0.071	3.685	0.128
136	JUBILEE LIFE	2017	0.008	8.01	7.802	0.008	0.045	6.798	0.538
137	JUBILEE LIFE	2018	0.020	4.69	7.857	0.007	0.056	7.513	0.307
138	JUBILEE LIFE	2019	0.026	5.24	7.922	0.006	0.049	4.925	0.586
139	JUBILEE LIFE	2020	0.013	5.40	7.966	0.005	0.042	1.356	0.812
140	K. ALLIANCE	2016	0.005	6.30	6.522	0.090	0.351	1.885	0.481
141	K. ALLIANCE	2017	0.088	8.01	6.495	0.096	0.394	2.879	0.308
142	K. ALLIANCE	2018	-0.060	4.69	6.467	0.102	0.624	3.206	0.432
143	K. ALLIANCE	2019	0.028	5.24	6.594	0.076	0.542	1.707	0.282
144	K. ALLIANCE	2020	0.023	5.40	6.536	0.175	0.477	15.859	0.289
145	K. ALLIANCE LIFE	2016	-0.004	6.30	6.375	0.169	0.117	24.071	0.199

146	K. ALLIANCE LIFE	2017	0.013	8.01	6.481	0.132	0.098	13.483	0.366
147	K. ALLIANCE LIFE	2018	-0.029	4.69	6.500	0.126	0.177	14.121	0.401
148	K. ALLIANCE LIFE	2019	-0.032	5.24	6.524	0.120	0.132	34.320	0.566
149	K. ALLIANCE LIFE	2020	-0.008	5.40	6.518	0.152	0.149	25.080	0.617
150	K. ORIENT LIFE	2016	0.111	6.30	5.744	0.312	0.493	25.438	0.214
151	K. ORIENT LIFE	2017	0.017	8.01	5.866	0.235	0.434	14.076	0.041
152	K. ORIENT LIFE	2018	0.002	4.69	5.999	0.174	0.363	21.274	0.278
153	K. ORIENT LIFE	2019	-0.003	5.24	6.109	0.142	0.357	9.154	0.234
154	K. ORIENT LIFE	2020	0.026	5.40	6.343	0.142	0.168	9.047	0.136
155	KENINDIA	2016	0.030	6.30	6.877	0.053	0.258	0.966	0.414
156	KENINDIA	2017	0.032	8.01	6.893	0.051	0.265	0.578	0.444
157	KENINDIA	2018	0.022	4.69	6.909	0.049	0.274	0.677	0.487
158	KENINDIA	2019	-0.070	5.24	6.896	0.051	0.289	0.540	0.702

159	KENINDIA	2020	0.016	5.40	6.872	0.081	0.275	0.574	0.527
160	KENINDIA LIFE	2016	0.002	6.30	7.420	0.006	0.052	1.956	0.701
161	KENINDIA LIFE	2017	0.002	8.01	7.483	0.005	0.044	1.270	0.724
162	KENINDIA LIFE	2018	0.005	4.69	7.532	0.005	0.048	0.967	0.231
163	KENINDIA LIFE	2019	0.001	5.24	7.599	0.004	0.046	2.765	0.628
164	KENINDIA LIFE	2020	0.002	5.40	7.661	0.009	0.037	1.279	0.737
165	KENYA ORIENT	2016	0.024	6.30	6.480	0.269	0.288	3.371	0.515
166	KENYA ORIENT	2017	0.004	8.01	6.391	0.329	0.418	4.230	0.631
167	KENYA ORIENT	2018	-0.053	4.69	6.326	0.383	0.399	6.410	0.560
168	KENYA ORIENT	2019	-0.135	5.24	6.355	0.358	0.509	1.388	0.480
169	KENYA ORIENT	2020	-0.055	5.40	6.568	0.219	0.424	2.323	0.583
170	LIBERTY	2016	0.011	6.30	7.370	0.026	0.203	5.712	1.078
171	LIBERTY	2017	0.017	8.01	7.389	0.025	0.175	2.789	1.006
172	LIBERTY	2018	0.012	4.69	7.375	0.026	0.197	4.300	0.489
173	LIBERTY	2019	0.019	5.24	7.391	0.025	0.160	2.575	0.916

174	LIBERTY	2020	0.011	5.40	7.390	0.025	0.187	5.163	0.919
175	MADISON	2016	-0.001	6.30	6.508	0.093	0.211	7.127	0.666
176	MADISON	2017	0.018	8.01	6.600	0.075	0.185	8.948	0.594
177	MADISON	2018	-0.036	4.69	6.667	0.130	0.214	8.905	0.705
178	MADISON	2019	0.002	5.24	6.648	0.136	0.218	3.691	0.728
179	MADISON	2020	0.011	5.40	6.643	0.138	0.236	6.387	0.619
180	MADISON LIFE	2016	0.015	6.30	6.976	0.016	0.197	3.164	0.126
181	MADISON LIFE	2017	-0.006	8.01	7.016	0.014	0.208	7.147	0.487
182	MADISON LIFE	2018	-0.060	4.69	7.103	0.035	0.153	9.620	0.314
183	MADISON LIFE	2019	-0.036	5.24	7.156	0.043	0.180	8.354	0.434
184	MADISON LIFE	2020	0.004	5.40	7.194	0.029	0.152	8.569	0.419
185	MAYFAIR	2016	0.101	6.30	6.602	0.150	0.262	3.251	0.227
186	MAYFAIR	2017	0.090	8.01	6.657	0.165	0.253	4.234	0.254
187	MAYFAIR	2018	0.099	4.69	6.711	0.195	0.300	4.751	0.246
188	MAYFAIR	2019	0.091	5.24	6.749	0.178	0.262	3.497	0.326
189	MAYFAIR	2020	0.076	5.40	6.820	0.227	0.251	2.873	0.346
190	MET CANNON	2016	-0.173	6.30	6.368	0.129	0.326	1.595	0.486

191	MET CANNON	2017	-0.071	8.01	6.383	0.188	0.542	0.988	0.608
192	MET CANNON	2018	0.045	4.69	6.369	0.194	0.349	2.371	0.530
193	MET CANNON	2019	0.026	5.24	6.351	0.202	0.413	1.504	0.607
194	MET CANNON	2020	0.046	5.40	6.387	0.186	0.384	2.737	0.433
195	MONARCH	2016	-0.008	6.30	6.095	0.254	0.379	2.191	0.355
196	MONARCH	2017	0.044	8.01	6.164	0.217	0.382	14.378	0.388
197	MONARCH	2018	0.057	4.69	6.251	0.178	0.400	20.259	0.465
198	MONARCH	2019	0.031	5.24	6.320	0.213	0.385	14.139	0.493
199	MONARCH	2020	-0.002	5.40	6.377	0.209	0.360	11.285	0.519
200	MONARCH LIFE	2016	-0.027	6.30	5.769	0.264	0.797	1.472	0.367
201	MONARCH LIFE	2017	0.250	8.01	5.782	0.256	0.718	1.497	0.208
202	MONARCH LIFE	2018	0.206	4.69	5.867	0.210	0.338	3.525	1.284
203	MONARCH LIFE	2019	0.001	5.24	5.805	0.243	0.788	3.082	0.176

204	MONARCH LIFE	2020	-0.051	5.40	5.878	0.205	0.738	4.190	0.517
205	MUA	2016	-0.128	6.30	6.313	0.146	0.783	6.046	0.761
206	MUA	2017	-0.010	8.01	6.184	0.196	0.757	4.728	0.111
207	MUA	2018	-0.069	4.69	6.150	0.212	0.823	4.191	0.229
208	MUA	2019	0.005	5.24	6.190	0.194	0.557	2.809	0.277
209	MUA	2020	-0.038	5.40	6.418	0.115	0.713	1.514	0.283
210	OCCIDENTAL	2016	0.065	6.30	6.459	0.241	0.168	3.809	0.522
211	OCCIDENTAL	2017	0.034	8.01	6.527	0.206	0.190	3.900	0.444
212	OCCIDENTAL	2018	0.082	4.69	6.552	0.194	0.233	4.476	0.471
213	OCCIDENTAL	2019	0.080	5.24	6.585	0.180	0.230	2.830	0.472
214	OCCIDENTAL	2020	-0.036	5.40	6.608	0.171	0.243	1.620	0.560
215	OLD MUTUAL	2016	-0.109	6.30	7.128	0.162	0.400	4.162	0.277
216	OLD MUTUAL	2017	0.001	8.01	7.166	0.148	0.252	2.343	0.360
217	OLD MUTUAL	2018	0.034	4.69	7.146	0.155	0.343	4.045	0.190
218	OLD MUTUAL	2019	0.011	5.24	7.185	0.142	0.209	3.468	0.510

219	OLD MUTUAL	2020	-0.025	5.40	7.147	0.155	0.490	2.341	0.422
220	PACIS	2016	0.029	6.30	6.313	0.245	0.470	4.474	0.340
221	PACIS	2017	0.030	8.01	6.364	0.231	0.397	4.278	0.311
222	PACIS	2018	0.047	4.69	6.340	0.264	0.420	2.444	0.309
223	PACIS	2019	-0.104	5.24	6.358	0.271	0.441	1.725	0.527
224	PACIS	2020	0.016	5.40	6.403	0.257	0.368	2.143	0.380
225	PIONEER LIFE	2016	0.061	6.30	6.655	0.033	0.098	4.169	0.640
226	PIONEER LIFE	2017	0.011	8.01	6.723	0.028	0.106	14.546	0.496
227	PIONEER LIFE	2018	-0.005	4.69	6.849	0.021	0.294	3.364	0.418
228	PIONEER LIFE	2019	0.019	5.24	6.882	0.053	0.147	2.746	0.567
229	PIONEER LIFE	2020	-0.009	5.40	6.809	0.062	0.147	5.168	0.504
230	PRUDENTIAL	2016	-0.378	6.30	5.965	0.433	1.770	9.845	0.652
231	PRUDENTIAL	2017	-0.214	8.01	6.139	0.295	0.209	0.920	0.362
232	PRUDENTIAL	2018	-0.151	4.69	6.167	0.278	0.401	1.201	0.010
233	PRUDENTIAL	2019	-0.062	5.24	6.253	0.230	0.473	0.543	0.295

234	PRUDENTIAL	2020	-0.122	5.40	6.291	0.212	0.425	0.733	0.310
235	RESOLUTION	2016	-0.126	6.30	6.650	0.092	0.749	1.126	0.221
236	RESOLUTION	2017	-0.213	8.01	6.528	0.122	0.406	1.000	0.291
237	RESOLUTION	2018	-0.109	4.69	6.663	0.089	0.449	1.173	0.336
238	RESOLUTION	2019	-0.045	5.24	6.714	0.079	0.416	0.989	0.330
239	RESOLUTION	2020	0.047	5.40	6.665	0.089	0.644	0.932	0.288
240	SAHAM	2016	0.049	6.30	6.098	0.239	0.455	2.602	0.163
241	SAHAM	2017	0.054	8.01	6.289	0.207	0.403	1.856	0.197
242	SAHAM	2018	0.069	4.69	6.265	0.218	0.453	2.150	0.211
243	SAHAM	2019	0.038	5.24	6.321	0.192	0.400	1.978	0.291
244	SAHAM	2020	0.041	5.40	6.283	0.439	0.341	8.866	0.328
245	SAHAM LIFE	2016	0.003	6.30	6.113	0.116	0.234	9.480	0.586
246	SAHAM LIFE	2017	0.011	8.01	6.103	0.118	0.213	8.410	0.936
247	SAHAM LIFE	2018	0.011	4.69	6.029	0.140	0.227	7.638	0.915
248	SAHAM LIFE	2019	0.026	5.24	5.775	0.252	0.213	4.904	10.318

249	SAHAM LIFE	2020	0.153	5.40	5.697	0.301	0.275	4.707	4.729
250	SANLAM	2016	-0.017	6.30	6.339	0.275	0.600	2.831	0.134
251	SANLAM	2017	0.038	8.01	6.430	0.293	0.371	2.437	0.357
252	SANLAM	2018	0.068	4.69	6.457	0.359	0.364	2.796	0.333
253	SANLAM	2019	0.008	5.24	6.463	0.354	0.349	4.011	0.359
254	SANLAM	2020	0.055	5.40	6.531	0.118	0.279	5.246	0.626
255	SANLAM LIFE	2016	0.026	6.30	7.386	0.008	0.113	1.995	0.748
256	SANLAM LIFE	2017	0.032	8.01	7.394	0.008	0.144	0.572	0.974
257	SANLAM LIFE	2018	0.023	4.69	7.383	0.035	0.204	0.973	0.156
258	SANLAM LIFE	2019	0.023	5.24	7.391	0.034	0.185	0.550	0.729
259	SANLAM LIFE	2020	0.025	5.40	7.418	0.032	0.135	1.028	0.529
260	TAUSI	2016	0.119	6.30	6.298	0.302	0.287	1.129	0.272
261	TAUSI	2017	0.139	8.01	6.352	0.267	0.420	3.720	0.229
262	TAUSI	2018	0.138	4.69	6.379	0.251	0.403	3.183	0.191
263	TAUSI	2019	0.123	5.24	6.433	0.221	0.394	3.790	0.252
264	TAUSI	2020	0.136	5.40	6.457	0.210	0.410	4.902	0.209
265	TRIDENT	2016	0.003	6.30	6.629	0.117	0.517	1.351	0.242

266	TRIDENT	2017	-0.028	8.01	6.642	0.114	0.650	0.747	0.347
267	TRIDENT	2018	-0.061	4.69	6.621	0.120	0.534	0.462	0.682
268	TRIDENT	2019	-0.017	5.24	6.614	0.121	0.458	0.456	0.575
269	TRIDENT	2020	0.013	5.40	6.633	0.116	0.547	0.274	0.215
270	UAP	2016	0.052	6.30	7.206	0.062	0.237	2.617	0.531
271	UAP	2017	0.085	8.01	7.193	0.064	0.231	3.288	0.514
272	UAP	2018	0.021	4.69	7.164	0.069	0.251	4.152	0.590
273	UAP	2019	0.085	5.24	7.165	0.068	0.201	1.609	0.598
274	UAP	2020	0.047	5.40	7.185	0.065	0.220	2.304	0.557
275	UAP LIFE	2016	0.003	6.30	7.034	0.147	0.182	9.718	0.268
276	UAP LIFE	2017	0.069	8.01	7.042	0.144	0.137	3.062	0.953
277	UAP LIFE	2018	0.022	4.69	7.052	0.141	0.225	3.253	0.445
278	UAP LIFE	2019	0.017	5.24	7.105	0.125	0.163	2.680	0.517
279	UAP LIFE	2020	-0.042	5.40	7.107	0.124	0.420	3.334	0.655