

**EFFECT OF UNDERWRITING RESULTS ON PROFITABILITY OF
GENERAL INSURANCE INDUSTRY IN KENYA**

BY

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DECLARATION

I, the undersigned, declare that this is my original work and has not been presented elsewhere for examination other than the University of Nairobi for academic credit.

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Date December 2, 2020

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This research project has been submitted for examination with my approval as the University supervisor:

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DEDICATION

I would like to dedicate this study to my grandfather John Katithi and my parents for their encouragements and faith in me since childhood.

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
IASB	International Accounting Standard Board
IBNER	Incurred But Not Enough Reported
IBNR	Incurred But Not Reported
IFRS	International Financial Reporting Standards
IRA	Insurance Regulatory Authority
GDP	Gross Domestic Product
GWP	Gross Written Premium
NEP	Net Earned Premium
NWP	Net Written Premium
OLS	Ordinary Least Squares
PBT	Profit before tax
ROA	Return on Assets
ROE	Return on Equity
SPSS	Statistical Package for Social science
STATA	Software for Statistics and Data Science

ABSTRACT

General Insurance sector plays a very significant role in Kenyan and global economy, over the few years however, the sector has experienced decline in profitability in Kenya despite indicating growth year on year according to IRA statistical industrial analysis. In this context the main objective of this study was to establish relationship between components of underwriting results and profitability of the short-term insurance firms in Kenya. Different metric to evaluate financial performance of property and casualty companies has been used by scholars but this study focused on underwriting results whose components are claim cost, commission expense and management expenses were used as independent variable, profitability margin as dependent variable and risk retention as control variable. The study was guided by Agency theory. Population of all licensed Short-term insurance business as at 2019 were selected for five years from 2015 to 2019. The data was analyzed using version 10 of the EViews statistical software and because of the quantitative nature of the data descriptive design was used to establish the relationship between the variables. Correlation analysis highlighted inverse relationship between commission expense (-0.3053), management expense (-0.3497), risk retention (-0.1700), and claims cost (-0.4567) and profitability. Findings from regression analysis was that there was no significant relationship between risk retention (which had p-value of 0.5966 exceeded the alpha level 0.05) and profitability. The regression analysis further highlighted that underwriting results affected profitability by a proportion of 30.52% giving an indication that there are other factors which influenced profitability. Management should instill effective initiatives to manage underwriting results in order to maximize shareholder wealth.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

There is no doubt a theoretical link exist between underwriting results and profitability in insurance firms. Forbes (1972) explains underwriting results to be the measure of difference between premium earned and losses associated with such premiums. Profitability is the extent in which firms meet their financial objective. Underwriting results and profitability are all incorporated during product pricing in property and casualty firms and management should therefore ensure balance between them in order to attain optimal productivity, because change in one element significantly affects the other (Oballa, 1994).

Mitroff (1983) on stakeholders' theory recognizes that organization is made up of different parties and further alludes that it is the responsibility of the management to consider all parties differently and ensure balance in their interest, profitability is critical in aligning the interest of these stakeholders. The theory argue that separation of ownership brings about conflict of interest specifically on how limited resources are managed. Management should, therefore, act faithfully to protect the resources assigned to them and actively manage underwriting results to maximize shareholders' value. Berger and Humphrey (1997) on asymmetry information theory appreciate the importance of perfect and comprehensive information, drivers of profitability should therefore be clearly understood by investors, creditors and other consumers of this information to guide their decision making.

According to Swiss Re Sigma No.3/2019 report, insurance companies globally contributed up to 6% of Gross Domestic Product and raised up to USD 5.19 trillion gross written premium in

2018. Board (2019) highlighted that in 2018, the industry in Kenya contributed up to 2.4% of the country's GDP and lots of employment opportunities have also been created. However, the performance has not been good over the years. According to the Insurance Regulatory Authority quarter-four 2019 industrial analysis, the industry reported underwriting losses of 3 billion, 1.7 billion and profit of 0.6 billion in 2019, 2018 and 2017 respectively. Kenya's economy has also witnessed profit warnings from some companies in insurance industry in 2019 and 2018. Despite huge contribution in the economy General Insurance Industry, profitability has been declining years on years, this creates a curiosity for research on profitability in this industry.

1.1.1 Underwriting Results

Underwriting results are a key performance indicator in Insurance accounting and in evaluating profitability of General Insurance firms (Board, 2019). Pricing in insurance firms factors five key elements; safety margin, return on equity, business acquisition cost, management expenses, and pure risk premium (Oballa, 1994). The safety of margin refers to the portion of consideration or premium that is expected to cater for unexpected occurrences. ROE is the return shareholders expect after underwriting and management of the business, business acquisition cost is the commission paid to intermediaries on bringing customers, Management expenses are cost associated with running the business (Oballa, 1994).

For a company to arrive at a commensurate premium rate, the above elements need to be factored during product pricing. Many organizations fail in this area by trying to lower the rate to make the price favorable to customers to attain high market share and command in the market (Kimani & Mburu, 2016). The pressure from the firm on getting more gross written premiums from their business development and sales personnel without proper strategic formulations compromises the underwriting philosophies hence affecting the sustainability of the firm.

Mwangi and Iraya (2014) alludes that underwriting results is expressed as a ratio, denoted by total claims expenses to earned premiums. Forbes (1972) on the other hand explains underwriting results to be measured by the difference in earned premium and losses. In this study, however, underwriting results was measured by its three components which are claims cost, commission expense, and management expenses which was further analyzed into commission ratio, claims ratio, and management expense ratio respectively.

1.1.2 Profitability

Profitability refers to degree in which organizations achieve their financial objectives within a specified period. According to Mwangi and Iraya (2014), financial performance refers to profitability, in the General Insurance industry, the entities collect premiums as their revenue also described as the amount paid by the policyholder in exchange for insurance cover (Oballa, 1994). A portion of the premium is invested in government securities including treasury bonds, commercial paper, treasury bills, and in the equity market for a return on investment called investment income. Total revenues in insurance firms, therefore, are total gross written premium and investment income.

Past empirical study shows that many General insurance companies give more focus on investment income as their main source of profits. Management should, therefore, come up with proper strategies to ensure that these financial institutions generate profits from their key operating activities. Geroski, Machin, and Van Reenen (1993) recognize the importance of innovations as a key driver in profitability for corporate institutions, good innovation strategies can shape the financial performance of an entity.

Well planned and structured merger in financial institutions leads to improved market share and both cost, and revenues synergies (Ngahu, 2016). UAP holdings merged with Old Mutual

holding to form UAP-Old Mutual holding boosted the performance of Old Mutual in East Africa business (Ngahu, 2016). Mergers and acquisitions bring about synergies and affect the company's bottom line positively if well-executed as evidenced by mergers in the banking industry CBA merging with NIC to form NCBA. These are strategies some insurance firms are adopting to ensure that they become and remain relevant, the concept of cost control is still very important both in managements expenses and claims cost, any organization that ignores cost control is deemed to make losses (Goldberg & Marmor, 1995).

Ngunguni, Misango, and Onsiro (2020), Maseki, Kung'u, and Nderitu (2019) and Nduati (2018) in their study on property and casualty companies used ROA or ROE as a measure of profitability. Guimaraes and Nossa (2010) used profitability margins arrived at operating profit divided by net sales to measure profitability on healthcare insurance. This study employed Profitability margin to measure profitability, this is a ratio of PBT divided by total income (PBT/total income). Total income comprises of net earned premium and investment income.

1.1.3 Underwriting Results and Profitability

Underwriting results are expected to influence profitability negatively, this is to mean that increase in components of underwriting results leads to a decrease in profits and vice versa. Mwangi and Iraya (2014) found that an increase in loss ratio will have an opposite influence on profitability of Insurance firms as it comprises major cash outflow and that it affects net client cash flows negatively. Other components of underwriting results are also expected to have the same relationship on profitability.

The profitability of each policy is incorporated during the pricing exercise; insurance companies are profit-making organizations and would also want to be profitable. Poor pricing and onboarding toxic accounts bring the aspect of tracing the underwriting results and reviewing

underwriting policies to balance revenues and associated costs (Kimani & Mburu, 2016). Cost control in the insurance firm starts at the point of accepting risk. Oballa (1994) insists on the need to ensure that the premiums to be paid by the customer are commensurate to the risk offered.

1.1.4 General Insurance Industry in Kenya

The insurance industry in Kenya is made up of long-term business, General insurance, and composite insurance business (Board,2019). Long-term business entities according to the Insurance Regulatory Authority offer services which are long-term in nature. These companies are also known as Life Assurance companies, they offer savings products, group life products, and retirement products. Composite insurance companies are licensed by IRA to offer both long term and short-term products.

General insurance is also known as property and casualty companies, they are legal entities that assume specific risks from their clients for a consideration called premium (Mwangi & Iraya, 2014). Choi (2010) reiterated that these insurance entities exist to offer protection against future uncertainties. The licensed companies are expected to pay 1% of the direct premium as premium levy and 0.5% of the direct premium as policyholder return. Policyholder return serves as a reserve in which if the firm is unable to meet their financial obligation in terms of claims payments, IRA can settle on their behalf.

As of 2019 quarter-four industrial statistical release the industry had 37 licensed entities, all these entities are expected to file their quarterly return at the end of every quarter and audited return at the end of every financial period, furthermore the insurance companies are expected to file claims return to track down long outstanding claims as part of their oversight. Companies

with bad turnaround time in terms of settlement of claims are expected to explain the same and are penalized if their reasons are unjustifiable.

1.2 Research Problem

Property and casualty companies faces risks of operating in losses as result of accepting risks that attract huge insurance cost. This is can occur by increasing claims cost and management expenses around claims monitoring and investigation, as evidenced in 2019 quarter-four industrial reports where they reported operating losses of ksh 3 billion, ksh 1.7 billion, and profit of ksh 0.6 billion in 2019, 2018 and 2017respectively. Proper management of the factors that influence profitability might minimize operational expenses and boost profitability. There is therefore a need to establish drivers of profitability to prevent underwriting losses and to guide investors in making informed investment decisions (Mwangi & Iraya, 2014).

The empirical literature is yet to settle the debate on the drivers of profitability on property and casualty companies in Kenya. Ngunguni, Misango, and Onsiro (2020) researched on how the productivity of General Insurance firms is influenced by financial factors, they analyzed liquidity, loss ratio, and leverage as independent variables. Maseki, Kung'u, and Nderitu (2019) examined how specific selected influence productivity of insurance entities listed in Kenya. Nduati (2018) researched on impact of specific aspects on profitability of property and casualty companies in Kenya by analyzing solvency margin, premium retention, leverage, size, age, and liquidity. Kinyua (2018) studied micro aspects and their impact on profitability of insurance companies listed in Kenya. His independent variables were; Insurance claims, size, liquidity, and retention. Kollie (2017) conducted a similar study, his independent variables were; Insurance claims, company size, liquidity, and retention ratio.

Methodologically previous empirical studies focused on other factors other than components of underwriting results with few including loss ratio as a study variable but still giving conflicting findings. This points to the gap of literature, which this research sought to address and provide an answer to the research question, what is the effect of underwriting results on the profitability of the General Insurance industry in Kenya?

1.3 Research Objective

To establish relationship between underwriting results and profitability of the General Insurance industry in Kenya.

1.4 Value of Study

This research makes contribution to finance theories like asymmetric information theory, stakeholders' theory, and agency theory by analyzing the relationship between components of underwriting results and profitability.

The findings contribute to policy and practice by enhancing understanding of drivers of profitability in the General Insurance industry, through this insight policymakers will be able to formulate guidelines on specific drivers of profitability.

To academicians, the study provides a piece of knowledge and a reference material for future research on profitability in the insurance industry.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section expounds on the effects of underwriting results on the profitability, it is organized in three parts, the first part covers theoretical review on underwriting results and how they impact the profitability of the industry. The second part covers specific components of underwriting results and profitability including claim cost, business acquisition cost (commission cost), and management expenses. The third section focuses on empirical studies both local and international.

2.2 Theoretical Review

The research is steered by agency theory, asymmetry information theory, and stakeholders' theory as it tries to determine the relationship between underwriting results and profitability of the property and casualty companies in Kenya.

2.2.1 Agency Theory

In 1976 Jensen and Meckling further contributed to the development of this theory after the efforts of Alchian and Demsetz in 1972 as a result of management mania on the stability of the company over wealth maximization (Dobbin & Jung, 2010). The theory elucidates the connection between management who act as agents in insurance setup and the shareholders who act as principals. According to Clarke (2004), the shareholder of General Insurance entities delegates the authority of running the business to the company directors. Padilla (2000) recognizes the fact that the management and the directors may not always act to the interest of shareholders hence creating conflict between the two.

IRA use total gross written premium as a metrics to evaluate and rank the market share of the companies in the industry, Management and directors may focus on growing their topline without considering the profits through unethical business practices like price undercutting. Kimani & Mburu (2016) appreciate that price undercutting will grow the revenues, but the business will not be sustainable. The implication is that the company will operate in losses, dividends will not be paid, and shareholders will not get value for their money.

According to Sun (2003), poor record-keeping and management can affect the recoverability of claims from reinsurers, if management does not keep updated records with regards to claims, they end up losing profits and liquidity hence not achieving the desired goals as agents to shareholders. Internal controls and cost minimization are also other areas that some managers fail, and the effect of their failure is felt on the company underwriting results and overall profits (Henningsson, Smith & Hyde, 2001).

2.2.2 Asymmetric Information Theory

This theory was first developed in 1970, according to Auronen (2003), however, its significance was further established before 2001 after its original authors won Nobel prize. The theory states that information imbalance between the sellers (Insurance firms) and the buyers (customers and investors) can lead to market failures. Berger and Humphrey (1997) reiterated the need for stakeholders to have adequate information to enable investors in making informed decisions when dealing with the company.

Klumpes and Morgan (2008) recognize the complexity in insurance accounting and appreciate that investors need to put more effort into understanding the industry better. Management clearly understands the kind of risks around the firm and the company's ability to going concern. Management can present the firm as profitable when the total profits arise from unrealized gains

on assets. It's worth noting that these unrealized gains are non-cash items hence do not translate to cash flows (Maines & McDaniel, 2000). This information can be misleading to some investors and customers, however, according to Gornik-Tomaszewski and Jermakowicz (2010), IFRS 1 requires the General insurance company to disclose such information well to guide the users in understanding and making correct judgments.

The information asymmetry is therefore common in the General Insurance industry and majorly affects investments decision and onboarding customers on certain insurance products and is contributed by information breakdown leading to poor investment decisions from some shareholders (Klumpes & Morgan, 2008).

2.2.3 Stakeholders' Theory

Stakeholder theory forms the anchoring theory of this study originally detailed by Freeman in 1984. The theory suggests that an organization is made of various parties and is the responsibility of the management to consider each organ differently. With lots of definitions on what constitutes stakeholder, Miles (2012) postulates that its definition can still be contested. The insurance firm has different Parties including customers, reinsurers, creditors, employees, regulators, and the general public.

According to Kieso, Weygant, and Kell (1987), the information that is processed for management consumption in terms of accounting should be different from what is given to the public in terms of simplicity, this is meant to create more understanding of the information to the public. According to Mignolet (2017), better presentation of financial information to the public is still in demand that is why IASB designed IFRS 17 to be implemented 1st January 2022 for insurance firms to meet the needs of the different parties given the complex nature of insurance industry and create uniformity in presentations of financial information.

The whole idea of profitability and presentation of financial statements should be made clear and more simplified to the different stakeholders to enhance a better understanding of the same. Berger and Humphrey (1997) appreciate the need for comprehensive and detailed information in making investment decisions.

2.3 Determinants of Profitability

Determinants of profitability are the factors that influence financial performance, this section focuses on, claims cost, management expense, risk retention, and commission cost.

2.3.1 Claims Cost

These are payments made by an insurance company for any risk accepted with aim of indemnifying the insured. Oballa (1994) explains claim as payment for losses incurred under the term of an insurance contract. Claims cost is made up of three components, claims payments, claims recoveries from reinsurance agreement, and reserves. According to Oballa (1994), reserves are important to the company to meet the regulatory requirements, to monitor financial performance, and for purposes of external and internal reporting.

These reserves include; claims outstanding which are reserves meant to cater for claims booked but not yet paid and Incurred but not reported reserve (IBNR) which is meant to cater for claims not yet intimated, equalization reserves meant to smoothen fluctuation in loss ratios and incurred but not enough reported reserve (IBNER) meant to cover a shortfall in claims outstanding when the insurer doesn't have enough information to access adequate reserve (Oballa, 1994). All these components are grounded up to form incurred claims, claim cost is measured by a ratio computed as (incurred claims/NEP).

2.3.2 Commission Expense

Also referred to as business acquisition cost, are expenses incurred in acquiring business from the customers, payable to business intermediaries. There are two components of commission cost; Commission earned which is compensation from ceding out business through facultative arrangements or treaty reinsurance and Compensation paid insurance intermediaries for bringing in business to the insurer. The summation of the two components gives net commission. Commission cost will, therefore, be measured by net commission ratio computed as (net commission/ Net earned Premium).

2.3.3 Management Expenses

These are costs incurred in running normal operations of the company, a huge proportion of these expenses are under the control of management, in that management can draw some cost control initiatives to reduce spending on some expense line. They include but not limited to; staff cost, depreciation cost, and advertisement. The higher the management expenses the worst the underwriting results (Mwangi & Iraya, 2014). Management expenses will be measured by expense ratio (management expenses / Net Earned Premium).

2.3.4 Risk Retention

Each insurance firm has a risk retention policy, this refers to the exposure that the company is willing to accommodate on a given risk (Oballa, 1994). Excess of that risk is ceded either through proportionate, facultative, or non-proportionate treaty arrangements to other insurance firms or reinsurance firms. Examples of proportionate arrangements are; quota share, facoblig (facultative obligatory treaty), and surplus treaty. Non-proportionate treaty arrangement constitutes of the excess of loss covers (Oballa, 1994). Risk-retention will be measured by retention ratio computed as NWP / GWP . Risk-retention will be used as a control variable.

2.4 Empirical Review

Numerous empirical studies on the determinants of financial performance have been carried out both internationally and locally using different variables and giving different conclusions on the relationship of the specific variables to financial performance or profitability.

2.4.1 International Evidence

Shawar and Siddiqui (2019) in their study on factors affecting financial performance on Pakistan collected and analyzed data from five insurance companies for five years covering 2013 to 2017. Their study covered gross written premium, claims, reinsurance, interest rate, real GDP, leverage, and size as the independent variable and investment income, sale profitability, and underwriting profit as dependent variables. Their findings showed that only GWP had a substantial impact on financial performance, showing a positive relationship. The rest had an insignificant impact on all three dependent variables.

Deyganto and Alemu (2019) conducted a similar study on insurance firms in Ethiopia. They collected secondary data from six general insurance companies in the region for 11 years from 2008 to 2018. The data collected was analyzed using a descriptive technique by SPSS software. The study factored in eight independent variables; premium growth, inflation rate, solvency margin, real GDP growth, interest rates, size, underwriting, and reinsurance dependence. They found out that solvency margin, underwriting, inflation rate, growth, and premium growth had significantly influenced profitability. The rest registered an insignificant relationship.

Bishaw, Lemie, and Tulu (2019) did research on determinants of the financial performance of insurance firms in Ethiopia. Their study relied on secondary data for eleven years from 2006 to 2016 on nine insurance firms in the region. They analyzed the following independent variables; premium growth, firm age, liquidity, leverage, and company size, and the dependent variable

was ROA. They found out that firm size, premium growth, and leverage influenced financial performance positively, liquidity, on the other hand, had an insignificant impact on financial performance.

Abebe and Abera (2019) conducted a similar study still in Ethiopia, he carried out an empirical investigation on 9 insurance entities in the region for 6 years (2010-2015). The study relied on secondary data from the regulator website and company publications. Independent variables of the study were leverage, age, capital adequacy, size of the company, and liquidity. The dependent variables were ROA and ROE.

2.4.2 Local Evidence

Kollie (2017) conducted a similar study in Kenya, she analyzed 54 companies in the region using questionnaires. The independent variables in the study were cash flows, organization structure, liquidity, and size of the firm. The data were analyzed using SPSS to establish significance and how each factor influenced profitability. The research found out that all four factors significantly influenced profitability. She recommended that the insurance industry should carefully evaluate and prioritize these variables to achieve strong financially. The limitation of this study was that it did not consider other external factors.

Kinyua (2018) studied micro factors and their impact on profitability of insurance companies listed in Kenya, using STATA, he analyzed data from six listed insurance entities in the region for seven years from 2011 to 2017. His independent variables were; Insurance claims, company size, liquidity, and retention ratio. In his findings, he highlighted that retention and insurance claims influenced profitability inversely and insignificantly, but liquidity impacted the same positively and also insignificantly. He further found that company size significantly influenced financial performance and had an inverse relationship.

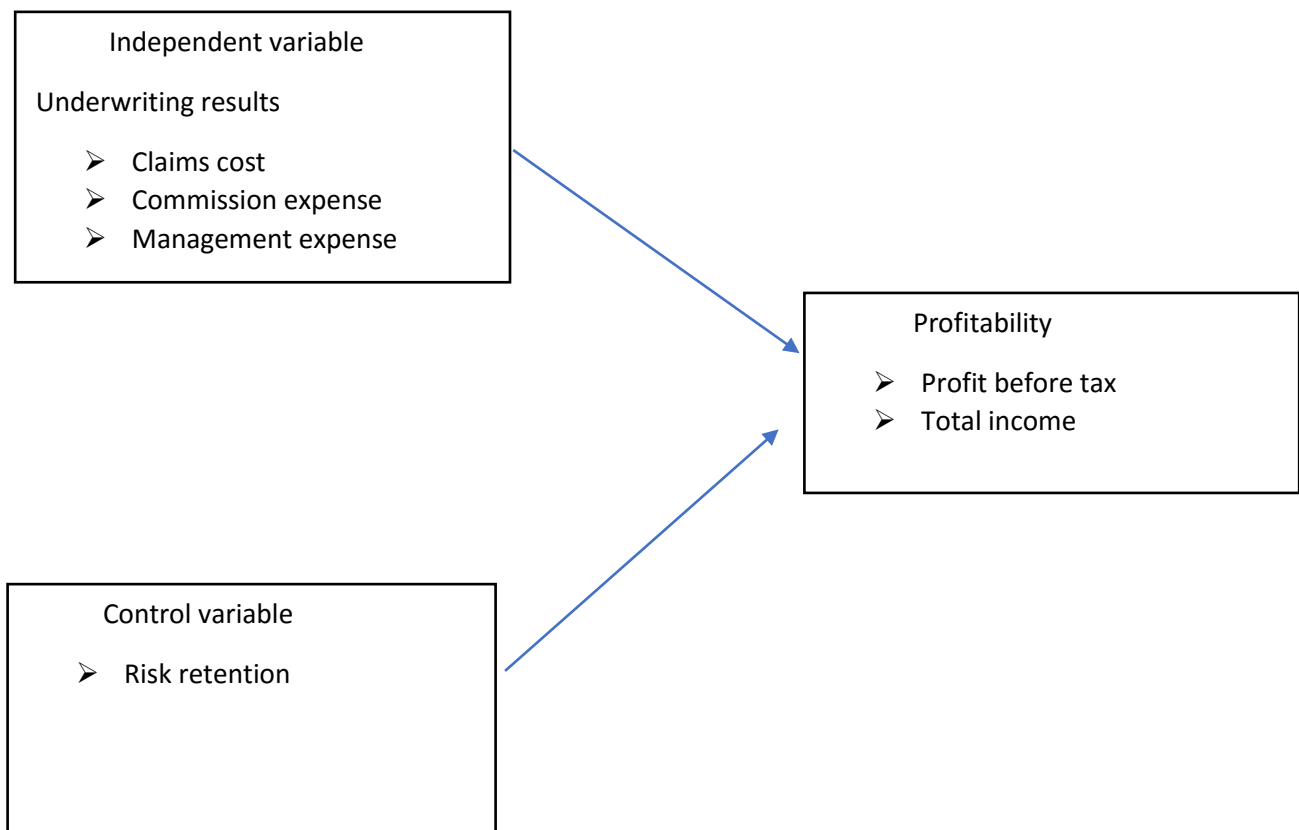
Nduati (2018) researched on impact of specific aspects on profitability of property and casualty companies in Kenya. Using SPSS, she analyzed data from fifty-five insurance companies for five years from 2013 to 2017. Her major variables were ROA as a dependent variable, solvency margin, premium retention, leverage, size, age, and liquidity as independent variables. She found an insignificant relationship between premium retention, liquidity, size, and profitability and further found that; solvency margin, leverage, and age to have significant impact profitability. She suggested room for further studies since her study did not exhaust independent variables affecting financial performance.

Maseki, Kung'u, and Nderitu (2019) examined how specific selected influence productivity of insurance entities listed in Kenya. They analyzed 36 responses from questionnaires administered through a stratified sampling design. The key variable under consideration were microeconomic factors, risk perception, and investment portfolio choice as independent variables. They found that all the factors influenced profitability, but the variables did not influence financial performance significantly. They, however, indicated that their model was not exhaustive as far as the drivers of financial performance are concerned.

Ngunguni, Misango, and Onsiro (2020) researched on how the productivity of General Insurance firms is influenced by financial factors. They used secondary data from IRA website for 28 companies for a span of 5 years from 2013 to 2017 and analyzed the data using a descriptive design by SPSS. The dependent variable was ROA while independent variables were liquidity, loss ratio, and leverage. They found that loss ratio significantly influenced profitability and together with leverage and expense ratio they showed a negative relationship. Liquidity registered positive and significant influence on profitability.

2.5 Conceptual Framework

Profitability in this study is anticipated to be influenced by three independent variables. Two control variables, however, will be included to increase the exploratory power of the study. Claim cost, commission expense, and management expenses are expected to negatively influence profitability. The study expects risk retention to have a positive influence on profitability of the industry. The study will adopt the conceptual model below.



Source: Study (2020)

Figure 2.1: Conceptual Model

2.6 Summary of the Literature Review

Previous empirical studies are inconclusive, they indicate that different factors are affecting the profitability of entities licensed to offer insurance services in Kenya but fail to establish the relationship between the factors. Other studies show that factors affecting the organization's financial performance are specific and vary with the market in which the organization is operating. The table below summarizes the research gaps.

Table 2.1: Summary of Research Gaps

Author	Research objective	Research gap
Ngunguni, Misango, and Onsiro (2020)	Effect of financial factors on profitability of General Insurance in Kenya	-Did not use any control variable -used only one component of underwriting results.
Maseki, Kung'u, and Nderitu (2019)	How specific selected influence productivity of insurance entities listed in Kenya.	-Did not factor in any component of underwriting results -The focus was on listed companies only
Nduati (2018)	The impact of specific aspects on profitability of property and casualty companies in Kenya	-Did not factor any component of underwriting results

Kinyua (2018)	Micro factors and their impact on profitability of insurance companies listed in Kenya	-focused on listed companies only - Did not factor any component of underwriting results
Kollie (2017)	Drivers of profitability in the property and casualty industry in Kenya	-The study did not factor in components of underwriting results

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This segment outlines data collection method and analysis, ideally, the section forms the blueprint of the research. The topic covers data collection, research methodology, population, research design analytical models, and data analysis.

3.2 Research Design

Mugenda and Mugenda (1999) defines this concept as a scheme that guides the researcher in generating answers posed by the research question. The descriptive design was used in an attempt to respond to the research question. According to Wanjugu (2014), a descriptive research design tries to explain variables or conditions in a situation by relying on information from the current state of phenomena, it tries to find out aspects associated with certain conditions or occurrences. In this study, the research design establishes relationship between profitability and underwriting results.

3.3 Population

Population entails collection of similar items of study, the population in this study, therefore, incorporated all licensed General Insurance legal entities in Kenya. According to IRA quarter-four industrial release, there were 37 licensed property and casualty companies in Kenya as of 2019.

3.4 Data Collection

The study relied on secondary data comprising of Annual and quarter four returns submitted to IRA. The data was extracted from the regulator's website for the last 5 years from 2015 to 2019.

The focus was on claims cost, commission expense, management expense, retention ratio, net earned premium, total income, and profit before tax.

3.5 Diagnostic Test

The regression model was made up of various assumptions, to achieve clinical output from information gathered multicollinearity, heteroscedasticity, stationarity, specification and autocorrelation tests were conducted on the data.

3.5.1 Multicollinearity Test

Multicollinearity test examines the presence of zero or moderate correlation between the independent variables (Daoud, 2017). VIF test was used to test for presence of multicollinearity because it involves convenient computations (Daoud, 2017)

3.5.2 Heteroscedasticity

This occurs if the variable's variability is uneven across the second variable's range of values that determine it, causing an error by showing residuals in selected datasets. A level comparison analysis of Breusch-Pagan was used to verify whether design was heteroscedastic.

3.5.3 Autocorrelation Test

Autocorrelation is a measure of degree of similarity between values of the same variable over successive time interval. Breusch-Godfrey LM test was used to test the degree of correlations on the variables of study.

3.5.4 Stationarity Test

Stationarity test is used to test whether the series of data collected for analysis is stationary and that statistical properties of data will not change over time. Augmented Dickey-Fuller test was

used to evaluate whether there was a unit root or no unit root for series of data provided for analysis.

3.6 Data Analysis

Data extracted from the Insurance Regulatory Authority was analyzed, version 10 of the EViews statistical software was used. Because of the quantitative nature of data, the study employed a quantitative analysis technique. The descriptive and inferential statistics was used in the analysis of trends, relationships, differences, and comparisons of the study variables. Data was presented using tables to elaborate on the effect of components of underwriting results on profitability in the General Insurance industry.

3.6.1 Analytical Model

Multiple regression with three independent variables, one control variables, and one dependent variable was used. The dependent variable was Profit margin, independent variables were; claims cost, commission expense, and management expense. Control variables was risk retention. The relationship equation is as shown below;

$$Y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \varepsilon$$

Where;

Y= Profitability (expressed as PBT/total income)

B₀= constant

β= Coefficients

X₁= Claims cost (a component of underwriting expressed as claims incurred/ NEP)

X₂=Commission expense (a component of underwriting expressed as net commission/NEP)

X_3 = Management expense (a component of underwriting expressed as management expense/NEP)

X_4 = Risk-retention (control variable expressed as NWP/GWP)

ε = Error term

3.6.2 Test of Significance

The significance of underwriting results on profitability of the General Insurance industry in Kenya was analyzed using the regression analysis (Eviews) output. significance of the model was tested using ANOVA, a confidence interval was set at 95%, and the level of significance at 5%. The coefficient of determination was used to evaluate how changes in the independent variable influence variation in the dependent variable.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 Introduction

This chapter has the findings about the main purpose of the study, which was to assess the effect of underwriting on the profitability of general insurance in Kenya. The chapter consists of descriptive statistics for examining trend of the research variable, inferential statistics for answering the underlying research question. The chapter also includes a diagnostic analysis for examining the validity and credibility of the collected statistical data. The observations herein have been compared with published literature to explore disparities, similarities, and new insights.

4.2 Descriptive Statistics

The descriptive statistics of the collected data were assessed to give an observatory view of the information. The descriptive analysis was performed for all the main variables of this study, which include risk retention, profitability margin, management expense, commission expense, and claims cost. Risk retention is the degree of exposure that an insurance company is willing to accommodate a risk (Oballa, 1994). The claims cost refers to the payments that an insurance company makes for risks taken when indemnifying the insured (Oballa, 1994). The commission expense refers to the expense incurred when compensating business intermediaries when acquiring business customers while management expense refers to the cost of running day-to-day operations of an insurance company (Mwangi & Iraya, 2014). According to Mishra et al. (2019), descriptive statistics are centered on measures of distribution, central tendency and measures of

dispersion. Central tendency was measured using mean, which provided the average value in a dataset and median, which provides the centermost value in the dataset.

Table 4.1: Descriptive Statistics

	Risk Retention	Profitability Margin	Management Expense	Commission Expense	Claims Cost
Mean	0.702247	0.053096	0.604908	0.061825	0.566550
Median	0.741754	0.066360	0.373129	0.082084	0.585621
Maximum	0.988046	0.300000	0.70844	0.280677	0.776618
Minimum	0.000000	-0.068762	0.000000	0.046852	0.000000
Std. Dev.	0.202917	0.232012	0.078498	0.093017	0.169220
Skewness	-1.206140	-1.055655	13.34479	-4.601927	-0.618479
Kurtosis	5.022035	9.093729	180.3726	32.44977	6.177349
Sum	129.9157	9.822763	111.9081	11.43761	104.8117
Sum Sq. Dev.	7.576234	9.904659	1320.081	1.591993	5.268892
Observations	185	185	185	185	185

Source: Study (2020)

The average risk retention was 70.22% with a maximum of 98.80%, minimum of 0%, and median of 74.18%. Profitability margin had a mean of 5.31%, a median of 6.64%, a maximum of 30%, and a loss of 6.88%. Management expense had a mean of 60.49%, a median of 37.31%, maximum of 70.84%, and a minimum of 0%. The average commission expense was 6.18% with a median of 8.21%, maximum of 28.06%, and a minimum of 4.69%. Claims cost averaged 56.65% with a median of 58.56%, a maximum of 77.66%, and a minimum of 0%.

Measures of dispersion for the data were also examined to overcome the inherent weaknesses of measures of central tendency, which usually provide one dimension of data (Rayat, 2018). For instance, the mean does not show how a set of data is distributed, which allows outliers to be captured in the average value (Rayat, 2018). However, a measure like standard deviation demonstrates how individual data sets vary from the mean (Yadav, Singh, & Gupta, 2019). The

standard deviation for risk retention was 20.29%, 23.20% for profitability margin, 7.85% for management expense, 9.30% for commission expense, and 16.92% for claims cost. The standard deviation for these variables was moderate, which suggested reliability of the collected data (Yadav et al., 2019).

4.3 Diagnostic Test

As earlier indicated, inferential analysis in this study was conducted using OLS estimators. In line Gauss-Markov theorem, there was a need to ensure that the three critical assumptions of OLS analysis namely, heteroskedasticity, multicollinearity, and autocorrelation were observed. OLS estimation is only deemed reliable when the error terms are homoscedastic, and the independent variables have zero autocorrelation and zero multicollinearity (Lacal & Tjøstheim, 2017).

4.3.1 Heteroscedasticity

Heteroscedasticity, tests whether the error terms have a constant variance (Klein et al., 2016). This test was examined using the Breusch-Pagan (BP) test as showed in Table 4.2. This test was deemed convenient for this analysis and its computation using the EViews software. The null hypothesis for this test was that homoscedasticity was present. The level of significance for this test was 5%.

Table 4.2: Heteroscedasticity Test Results

F-statistic	6.844145	Prob. F (4,180)	0.1610
Observed R-squared	24.42256	Prob. Chi-Square (4)	0.1231
Scaled explained SS	79.04388	Prob. Chi-Square (4)	0.0720

Source: Study (2020)

The decision criteria for heteroscedasticity follows the comparison of the computed probability and the critical probability. To that effect, the F-statistic for the BP test was not statistically significant at 5% and hence, the null hypothesis that homoscedasticity was present was not rejected.

4.3.2 Autocorrelation

Autocorrelation refers to the correlation between the predictor variables and their lags (Lacal & Tjøstheim, 2017). It occurs in time series data and can also occur if the regression model is not correctly specified such as specifying a model as linear when the relation is non-linear (Lacal & Tjøstheim, 2017). Autocorrelation in OLS estimation ought to be zero. Breusch-Godfrey Serial Correlation LM Test was used to examine autocorrelation among the predictor variables. The underlying null hypothesis for the test was that there was no autocorrelation in the variables. The level of significance for this test was 5%.

Table 4.3: Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.183234	Prob. F (2,178)	0.3087
Obs*R-squared	2.427262	Prob. Chi-Square (2)	0.2971

Source: Study (2020)

The decision criteria for autocorrelation test follows the comparison of the computed probability and the critical probability. The F-statistic for the test was not statistically significant at 5% ($p = 0.3087$) and hence, the null hypothesis that there was no autocorrelation was not rejected.

4.3.3 Multicollinearity

Multicollinearity test examines the presence of zero or moderate correlation between the independent variables (Daoud, 2017). The Variance Inflation Factor (VIF) test was used to test for presence of multicollinearity because it involves convenient computations (Daoud, 2017). A VIF below 5 implies moderate correlation while that approximately 1 implies zero multicollinearity.

Table 4.4: Multicollinearity test through VIF

Variable	Coefficient Variance	VIF
C	0.004234	NA
Risk Retention	0.007655	1.550641
Claims Cost	0.008247	1.161804
Commission Expense	0.033983	1.446401
Management Expense	3.22E-05	1.137080

Source: Study (2020)

The decision criteria for multicollinearity in this test is that A VIF below 5 implies moderate correlation while that approximately 1 implies zero multicollinearity. In line with this criterion, it can be said that all the variables had zero to moderate multicollinearity, which is allowed in econometric analysis.

4.3.4 Stationarity Test

A set of time series data is considered stationary if its mean, covariance, and variance are constant across the period (Jalil & Rao, 2019). The stationarity of time series data lowers the volatility of the data, which enhances its reliability. A unit root test was performed to examine the stationarity of the collected data as part of performing a reliable OLS analysis. This test was conducted to test the order of integration of the variables. Stationary data exhibits linear characteristics, which can be inferred in the linear test performed previously. The Augmented

Dickey-Fuller (ADF) test was used to examine the order of integration of the research variables with Akaike criterion as the automatic lag length. The prevailing null hypothesis for this test was that there was no stationarity in the data, or rather, individual variables had unit roots. The decision-making criterion was that the null hypothesis would be rejected if the p-value exceed the significance level of 5%.

Table 4:5: Augmented Dickey-Fuller (ADF) for Stationarity Test

Variable	At Level		At First Difference		Order of integration
	Statistic	Probability	Statistic	Probability	
Profitability margin	-7.8306	0.0432	14.2564	0.0000	I (0)
Claims cost	9.1112	0.0090	11.4698	0.0004	I (0)
Commission expense	9.8636	0.0034	17.3292	0.0000	I (0)
Management expense	10.7844	0.0010	11.6684	0.0006	I (0)
Risk retention	13.5014	0.0000	13.9854	0.0000	I (0)

Source: Study (2020)

As showed in Table 4.5, the p-values for all variables were below the 5% significance level both at level and at first difference. Hong, Wang, and Wang (2017) recommend testing for unit roots for at least two levels avoid bias. Based on the observations, the null hypothesis that there was no stationarity was rejected. Both the independent variables and the outcome variables were integrated of order zero, which is considered an ideal demonstration of stationarity (Hong et al., 2017).

4.3 Inferential Statistics

Inferential statistics are set of statistical tests which user use to make inference about data. In this section three test will be conducted which are, person correlation analysis, regression analysis and hypothesis test.

4.3.1 Correlation Analysis

Part of the aim of this study was to explore the relationship between underwriting metrics and the profitability of general insurance industry in Kenya. Correlation analysis was performed to achieve this aim. The analysis evaluates the strength of the link between an independent variable and a dependent variable (Zhou et al., 2016). Correlation helps in showing how strong two variables are connected and the direction of their association. Pearson's correlation analysis was used to test the correlation of profitability margin and the independent variables of this study. The correlation between two variables is considered either perfect, strong, moderate, or weak depending on the degree of the strength (Schober, Boer, & Schwarte, 2018). A correlation of 1 is perfect, strong above 0.7, moderate above 0.4, and weak below 0.4 (Schober et al., 2018). Correlation also shows the direction of the relationship between two variables, which can either be positive or negative.

Table 4.6 :Pearson's Correlation Analysis

	Profitability Margin	Commission Expense	Management Expense	Risk Retention	Claims Cost
Profitability Margin	1.0000	-0.3053	-0.3497	-0.1700	-0.4567
Commission Expense	-0.3053	1.0000	0.1558	0.5160	0.1503
Management Expense	-0.3497	0.1558	1.0000	-0.0849	0.2094
Risk Retention	-0.1700	0.5160	-0.0849	1.0000	0.2855
Claims Cost	-0.4567	0.1503	0.2094	0.2855	1.0000

Source: Study (2020)

Profitability margin exhibited a negative correlation with all the independent as showed in Table 4.6. The correlation between profitability margins and the other variables was commission expense (-0.3053), management expense (-0.3497), risk retention (-0.1700), and claims cost (-0.4567). This observation suggests that profitability of the insurance industry decreases as any of these factors increase. However, the correlation ranged between weak to moderate even among the explanatory variables. Nonetheless, correlation analysis does not demonstrate the effect that an independent variable has on the dependent variable (Zhou et al., 2016). Regression analysis was performed to explore the cause-effect relationship of the predictor variables and the outcome variable.

4.3.2 Regression Results

The objective of this research was to examine the effect of underwriting on the profitability of the general insurance industry in Kenya. Regression analysis was performed to help in understanding the dynamics of this relationship between the two overarching variables. This study used a linear regression model to allow for measuring different variables through which underwriting was measured (Plonsky & Oswald, 2017). Linear regression allows for the use of ordinary least squares (OLS) estimations especially in multivariate scenarios. According to the Gauss-Markov theorem, OLS estimators in multiple linear regression give the best and unbiased estimation provided that the errors of the linear model have equal variance and are uncorrelated (Plonsky & Oswald, 2017). The study measured the effect of each of the independent variables because there was no umbrella value for measuring underwriting. This analysis used a 5% significance level because it is the standard alpha level (Plonsky & Oswald, 2017). This analysis was steered by the following null hypotheses.

H₀₁. There is no significant effect of risk retention on profitability margin.

H₀₂. There is no significant effect of claims cost on profitability margin.

H₀₃. There is no significant effect of commission expense on profitability margin.

H₀₄. There is no significant effect of management expense on profitability margin.

Table 4.7: Regression Analysis

Dependent variable: Profitability Margin				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.367664	0.065071	5.650214	0.0000
Risk Retention	0.046396	0.087495	0.530270	0.5966
Claims Cost	-0.528212	0.090816	-5.816308	0.0000
Commission Expense	-0.580248	0.184344	-3.147642	0.0019
Management Expense	-0.019865	0.005676	-3.499850	0.0006
R-squared	0.320262	Mean dependent variable		0.053096
Adjusted R-squared	0.305157	S.D. dependent variable		0.232012
S.E. of regression	0.193399	Akaike info criterion		-0.421468
Sum squared residual	6.732572	Schwarz criterion		-0.334431
Log likelihood	43.98575	Hannan-Quinn criterion.		-0.386194
F-statistic	21.20199	Durbin-Watson statistic		2.138446
Prob(F-statistic)	0.000000			

Source: Study (2020)

The reliability of the independent variables and the strength of the model were examined using the coefficient of determination (r-squared) and the analysis of variance. On the one hand, the coefficient of variation is a parameter used to show a change in the independent variables can affect the outcome variable, in effect showing the significance of the former on the latter (Shieh & Wu, 2020). The analysis showed that the underwriting results variables could only explain 32.03% of the change in the profitability of the industry and 30.52% when adjusted as showed in

Table 4.3. The adjusted R-squared is more reliable than the R-squared because it is not highly volatile to the changes in one or all the predictor variables (Shieh & Wu, 2020).

On the other hand, ANOVA was performed to test whether the model in this analysis was statistically significant. The assumptions that sum and variance for errors are both zero, which are necessitated when performing ANOVA were observed in this analysis. The F-statistic for the model was 21.20, which was statistically significant at 1% as showed in Table 4.7. As such, it was determined that the model was statistically significant for a reliable analysis.

4.3.3 Hypotheses Testing

The decision criterion for hypothesis testing in this study was that if the computed probability (p-value) was less than the critical probability (significant level), the null hypothesis for individual tests would be rejected. The null hypothesis that there is no significant effect of risk retention on profitability margin was not rejected because p-value (0.5966) exceeded the alpha level (0.05). The null hypothesis that claims cost has no significant effect on profitability margin was rejected on the grounds that the p-value ($<.001$) was less than the alpha level. The null hypothesis that commission expense has no significant effect on profitability margin was rejected because the coefficient was statistically significant as 1% ($p < 0.01$). Lastly, the null hypothesis that management expense has no significant effect on profitability margin was rejected because the coefficient was statistically significant as 1% ($p < .001$).

4.4 Interpretation of the Findings

There was weak to moderate correlation between profitability and the variables of underwriting results. The correlation was also in the negative direction suggesting that profitability decreases with increase in any of the independent variables. The correlation coefficients were such that

commission expense (-0.3053), management expense (-0.3497), risk retention (-0.1700), and claims cost (-0.4567). Regressions analysis findings was that there was no significant effect of risk retention on profitability with its P-value 0.5966 above alpha value. There was, however, significant relationship of claims cost, management cost, commission expense against profitability as each p-value was below alpha value 0.05.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter contains the conclusion of the study. The previous chapter has presented the findings of the study. This chapter consists of the study summary, study conclusion, policy recommendation, and direction for further research.

5.2 Summary

The purpose of this research was to examine the effect of underwriting results on the profitability of the general insurance in Kenya. The study was guided by a quantitative research methodology anchored on an exploratory research design. The data for the study was collected for annual results in the industry since 2015 through 2019. The study focused on all licensed property and casualty companies during that. The data was analyzed using version 10 of the EViews statistical software.

Several observations were made in this research. There was weak to moderate correlation between profitability and the variables of underwriting results. The correlation was also in the negative direction suggesting that profitability decreases with increase in any of the independent variables. The correlation coefficients were such that commission expense (-0.3053), management expense (-0.3497), risk retention (-0.1700), and claims cost (-0.4567).

The overarching hypothesis for this study was that underwriting results do not influence the profitability of general insurance industry in Kenya. A regression analysis was performed to test this hypothesis, albeit for each predictor variable. The null hypothesis that there is no significant effect of risk retention on profitability margin was not rejected because p-value (0.5966)

exceeded the alpha level (0.05). The null hypothesis that claims cost has no substantial impact on profitability margin was rejected on the grounds that the p-value ($<.001$) was less than the alpha level. The null hypothesis that commission expense has no significant effect on profitability margin was rejected because the coefficient was statistically significant at 1% ($p < 0.001$). Lastly, the null hypothesis that management expense has no significant effect on profitability margin was rejected because the coefficient was statistically significant at 1% ($p < .001$).

5.3 Conclusion

The overriding aim of this study was to examine whether underwriting results influences the profitability of general insurance. Based on the observations made, it can be concluded that underwriting influences the industry's profitability up to a point. Out of the reviewed variables, three variables namely commission expense, management expense, and claims cost had a statistically significant relationship with profitability, which is the basis for arriving at this conclusion. Based on the regression coefficient, these coefficients had a negative relationship with profitability, which means that a unit decrease in any of these coefficients decrease profitability up to a point. This observation shows the vitality of underwriting in general insurance because it can influence the profitability of the industry. Based on the analyzed model, the variables for underwriting results explains up to 30.52% of the changes in the profitability of the industry. While this shows the importance of underwriting on profitability, it also shows that the industry ought to think of other factors that influence about 70% of the changes in its profitability as suggested by the goodness of fit of this model.

5.4 Policy Recommendations

Based on the outcome of this study, it can be recommended that the study examine ways of reducing underwriting load. The main finding on this study is that underwriting results can have

a significant effect on the profitability of general insurance. This effect is largely inversely proportional based on the observation herein, which means that underwriting increases the volatility of the industry's profitability. Increasing the profitability of the industry necessitates offloading its underwriting load. Where shedding of the underwriting load is unfeasible, the industry might want to expand its asset holding to ensure that its profitability is not entirely vulnerable to underwriting results.

5.5 Limitations of the Study

As previously noted, this study involved annual data from 2015 through 2019. However, the time-series nature of this study makes it susceptible to statistical errors such as heteroscedasticity, which can be overcome by using a larger dataset. This also study was based on the general and casualty insurance, which means that the findings herein might not be extrapolated to infer the entire insurance industry.

5.6 Suggestions of Further Research

This study recommends several areas of further research. First, this study was based on the general and casualty insurance, which means that the findings herein might not be extrapolated to infer the entire insurance industry. However, considering that the industry involves other players such as Long-term business, there is a need to conduct a related research focused on these players. In addition, from the findings there other internal and external factors which influences profitability in insurance industry, further studies can be done on other drivers of profitability.

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APPENDICES

Appendix 1: Registered General Insurance Companies in Kenya as at 2019

1. AAR Kenya	20. Kenya Orient
2. African Merchant	21. Madison
3. AIG	22. Mayfair
4. Allianz	23. Metropolitan Cannon
5. APA	24. Mua
6. Britam	25. Occidental
7. CIC	26. Pacis
8. Corporate	27. Sanlam
9. Directline	28. Resolution
10. Fidelity Shield	29. Saham
11. First	30. Pioneer
12. GA	31. Takaful Of Africa
13. Geminia	32. Tausi
14. Heritage	33. The Kenyan Alliance
15. ICEA LION	34. The Monarch
16. Intra-Africa	35. Trident
17. Invesco	36. UAP
18. Jubilee	37. Xplico
19. Kenindia	

Source: Insurance Regulatory Authority