Underwriting risk, firm size and financial performance of insurance firms in Kenya

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ABSTRACT

The purpose of this study was to investigate moderating effect of firm size on the relationship between underwriting risk and the financial performance of insurance firms in Kenya anchored on agency theory. Panel data was collected from 54 insurers that operated in Kenya for the ten years (2010-2018). The unbalanced panel data was analyzed using Random and Fixed effect model where Hausman test select model for testing the hypotheses. The study found that underwriting risk had a significant negative effect on financial performance. firm size negatively moderated the relationship between; underwriting risk and financial performance. High underwriting risk reduce financial performance, the situation is worse in larger firms than small firms. The study recommends that insurance firms should divert their focus towards increasing premium to reduce underwriting risk and enhance their financial performance. Finally, it is crucial for the insurance firms to utilize Equity Capital optimally such that it does not become a liability as a consequence of the interest paid.

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Highlights of this paper

- Underwriting risk had a significant negative effect on financial performance.
- Firm size negatively moderated the relationship between underwriting risk and financial performance.
- Large firms have high negative effect on financial performance.

1. INTRODUCTION

The global insurance industry continued to register strong performance and has continued to enjoy profitability (Pidchosa & Dovhosheia, 2019) . European insurance companies have undergone a significant change in their performance from 2011-2020 because of the deregulation in Europe that were directed on banking institutions (Puławska, 2021). The liberalization of this sector has enabled in increase of size of the firms through mergers and acquisition activities changing the structure and performance of the European insurance sector. It is therefore believed that the increased consolidation and alterations in the firm characteristics has accelerated competition and forced companies to seek for various ways of increasing their performance. However, performance insurance firms depend on some of its characteristics such as underwriting risk, which according to Johny, Purwoko, and Merawaty (2021) reduces the performance. According to OECD (2017) underwriting risk is essential in the development of insurance markets in European insurance industry. Burca and Batrinca (2020) linked decrease in underwriting risk with increase in financial performance. On the contrary, Also, Tarsono, Ardheta, and Amriyani (2020) net premium growth and claim ratio did neither increase nor decrease the financial performance.

According to Olarewaju and Msomi (2021), most African countries heavily rely on the insurance sector for economic growth and stability, but the performance of insurance in Sub-Saharan Africa is hindered by inconsistent markets in terms of size, product mix, growth, and consolidation, with a majority of premiums (91%) concentrated in just ten countries (Asongu & Odhiambo, 2020). According to Morara and Sibindi (2021), the financial performance of insurance firms in Kenya is not as strong as in developed countries. The insurance industry in Africa showed a slight growth of 0.5% in real terms in 2017, down from 5.1% in 2015 and 2.8% in 2016 (Chege, Wanjau, & Nkirina, 2019). This has prompted interest in what factors, such as underwriting risk, determine the financial success of the insurance industry, among various stakeholders including governments, policymakers, policyholders, and investors. According to Morara and Sibindi (2021), the financial performance of insurance firms in Kenya is not as strong as in developed countries. The insurance industry in Africa showed a slight growth of 0.5% in real terms in 2017, down from 5.1% in 2015 and 2.8% in 2016 (Chege et al., 2019). This has prompted interest in what factors, such as underwriting risk, determine the financial success of the insurance industry, among various stakeholders including governments, policymakers, policyholders, and investors. However, in the fourth quarter of 2021, the results of underwriting in the general insurance business significantly decreased from a loss of 1.18 billion KES in Q4 2020 to a loss of 6.34 billion KES in Q4 2021, mainly due to the high increase in underwriting losses in different classes due to the lifting of COVID-19 restrictions on travel. This resulted in a motor private underwriting loss of 6.17 billion KES and a motor commercial underwriting loss of 3.32 billion KES. "General reinsurers faced claims of KES 13.80 billion and direct expenses (commissions and management expenses) of KES 10.14 billion, according to the Insurance Regulatory Authority (2014) annual report. However, some insurance companies lack the necessary level of capitalization to handle major and new risks like political violence and terrorism." This necessitated a research on the Kenyan insurance industry, which has been growing with the influx of international insurance firms such as Sanlam and Old Mutual Group. Despite having 55 registered insurance providers in 2017 (Insurance Regulatory Authority, 2017), just 10 of them hold 60% of the market share. The insurance sector has seen intense competition from dominant players, leading to sluggish growth and financial struggles for many companies. This

has caused a high rate of insurance companies facing receivership and liquidation issues. Since 2008, over eight insurance firms have been placed under statutory management (Insurance Regulatory Authority, 2013).

These worrying statistics are peculiar to the insurance sector since the commercial banks and Savings and Credit Cooperative Organisation or Society (SACCOs) statistics support a different narrative (Sing'ombe, 2016). Therefore, the question that begs for answers is what specific firm factors in insurance firms that are responsible for the persistent below average financial results in some of the insurance firms. local studies linking firms' characteristics such as Odira (2018) who studied firm characteristics (leverage, liquidity, and underwriting) on performance of 32 general insurance companies in Kenya using data from 2011-2016. Too and Simiyu (2018) determined effect of firm characteristics (ownership structure, firm size, capital structure and firm age) on performance of 47 General insurance companies in Kenya from 2011-2015. Other studies such as Obudho (2014); Wahome (2015) have also studied firm characteristic and performance of non-life and listed insurance firms respectively. However, these studies did not conclusively show how underwriting risk affect performance of all insurance firms for a larger period exceeding five years. In addition, they did not consider firm size as moderator. Thus, the study sought to find moderating effect of firm size on relationship between underwriting risk and the financial performance of insurance firms in Kenya.

2. THEORETICAL FRAMEWORK

The use and adoption of the agency theory increased significantly in the 1980s as firms replaced the school of thought of managerial equity capitalism with managers been viewed as shareholders agents (Salehi, Arianpoor, & Dalwai, 2020). Agency theory was able to address the growing concern and accusations that managers were involved in empire building with total disregard of shareholders interest in wealth maximization.

Michael Jensen termed this as systematic fleecing of bondholders and shareholder. Agency problem deepens according to the size and complexity of firm's operations (Jensen, 1986). Majority of shareholders have no time and knowhow to manage their business and hence the need to engage managers as agents and trustees (Zhu, Hu, Che, & Yang, 2020). Ultimately, the need to achieve separation of control and ownership of the firm arises. This is in accordance with the best international practices of governing an entity. Unfortunately, a problem occurs when risk seeking managers choose to pursue selfish, greedy and personal objectives at the expense of the interests of the risk-neutral shareholders (Baulkaran & Bhattarai, 2020). Chances of moral hazards occurring increase due to the rise of opportunistic behavior of self-interest start to be the guide for managers (Ballwieser et al., 2012).

Moral hazard is bound to exist between the insurer and the insured as each aspires to increase their utility; profit and benefit respectively (Rossi & Harjoto, 2020). The problem of moral hazard which is the source of the agency theory introduces agency costs. The principal aspires to reduce information asymmetry by using performance contracts, motivating and giving incentives to his managers and implementing rules and regulations with the aim of minimizing adverse consequence. However, achieving zero agency costs is a far-fetched fallacy, since the marginal costs of achieving this, would surpass the benefits of proper and perfect alignment between managers and principal (Wani & Ahmad, 2015). The more effective the board of directors is in monitoring and measuring the behavior and performance of managers the better the profitability.

The relevance of this theory in discussing influence of underwriting risk on financial performance of insurance firms is based Kader, Adams, Andersson, and Lindmark (2010) use of agency Theory in explaining that insurance firms with higher underwriting risk are likely to acquire greater reinsurance coverage than insurers that write less risky lines of insurance. his is because reinsurance helps to mitigate the adverse financial effects of mis-priced assumed risks, unexpectedly severe losses, and associated earnings volatility.

2.1. Underwriting Risk and Financial Performance

There has been link between underwriting risk and financial performance of firms. Wongsuwatt et al. (2020) look into the impact of underwriting risk on insurance firms (non-life) company profitability as moderated by firm type. The study collected secondary data from database of 52 insurance firms (non-life) in Thailand. Results from Ordinal Least Square (OLS) regression and fixed effect revealed that underwriting risk had negative effect on financial performance of non-life insurance firms.

Malik (2011) investigated the variables affecting profitability in Pakistani insurance firms. He collected 4-year secondary data (2005-2009) from a sample of 35 publicly traded life and non-life insurance firms. The data was obtained from the financial statements of the insurance companies, State Bank of Pakistan's annual financial publications, and the Insurance Year Book published by the Pakistan Insurance Association (IAP). The panel data analysis revealed that underwriting risk and leverage ratio were negatively associated with profitability in a substantial manner.

Berhe and Kaur (2017) analyzed the variables that impact the financial performance of Ethiopian non-life insurance companies, using a sample of 12 insurance firms and 72 observations from the years 2011 to 2016. Domentary gyided was used to gather secondary data from the firms' audited financial annual reports, sourced from the head offices of each insurance company and the National Bank of Ethiopia (NBE). The assumptions of the classical normal linear regression (CLRM) were evaluated to guarantee that the data was devoid of autocorrelation, multicollinearity, skweness/kurtosis, and heteroscedastic to meet the requirements of OLS analysis. The regression analysis using panel least square showed that the financial performance of non-life insurance companies was positively correlated with underwriting.

Daare (2016) used panel data to investigate the factors that influence non-life insurance financial performance in India, focusing on 8 general insurance companies (6 private and 2 public) from 2006 to 2016. Secondary data from annual audited financial accounts was used in this study. The data was analyzed using the multivariate linear regression OLS model. The findings showed that underwriting risk is connected to return on investment (ROI).

Using secondary data from 12 trading insurance firms in stock market for a period of 7 years (2006-2013), Kazeem (2015) employed panel data approach to evaluate the impact of firm specific variables on the financial performance. Data was derived from audited financial statements and analyzed data using multiple regressions as tool for analysis. Hausman test was employed to select random effect over fixed effect model in testing the hypotheses. Underwriting risk is the most significant and critical indicator of bank performance in the Nigerian insurance business, according to the results of multiple regression. As a result, underwriting risk have a negative relationship.

Saeed and Khurram (2015) carried a study on determinants of non-life insurance firms in Pakistani. Data was sourced from 24 insurance (non-life) firms for 9 years from 2005-2013. Fixed and random effect model was used to analyzed data. Hausman model results favored the use of fixed effect model in testing hypothesis. Results highlighted that there was empirical evidence of a negative effect of underwriting risk on profitability of non-life insurance companies operated in Pakistan.

In Ethiopia, Teklit and Jasmindeep (2017) analyzed effect external and internal factors of financial performance (profit) of insurance firms using panel data approach of 10 years from 2006 to 2015. Fixed effect model was chosen by Hausman test and revealed that underwriting had insignificant impact of profitability of insurance firms. However, profitability in terms of ROA was negatively affect by underwriting risk at 0.05 level of significance.

A study conducted by Doumpos, Gaganis, and Pasiouras (2012) estimated and explained the determinants of non-life insurance firms' profitability (casualty and property). Their study sampled 2000 non-life insurers from 91

countries for a period of 5 years (2005-2009) consistently. Data was collected from insurance firm's database and annual reports. Two stage analysis was employed, where the first stage used multi-criteria technique to analyze the insurers condition while bearing in mind at the same time a set of differing financial conditions. Then, regression analysis was used in the second stage in testing hypothesis of firm specific variables and financial performance assed from the first stage. Based on the results, it was found that underwriting risk had significant but negative effect on financial performance of non-life insurance companies.

A study carried for a period of 8 years (2005-2012) using panel data by Ejigu (2016) assessed internal determinants relating with profitability of insurance companies (measured as proxy of return on asset). Data for identifying variables was collected from audited annual financial report such as income statements and balance sheet using documentary guide. Aided by STATA v.11, panel analysis using fixed and random effect revealed that underwriting risk has no effect Insurance firms' profitability in Ethiopia.

Mistire (2015) investigated the factors that influence performance (profitability) in Ethiopia's insurance business. Using a sample of 9 organizations and data collected through dynamic panel and primary data, the study explored both firm specific attributes from 2003 to 2014. underwriting risk was one of the firm specific attributes. Results from panel analysis (OLS) revealed that underwriting risk was negatively correlated with profitability of insurance companies significant at 0.05 level of significance.

In a study by Meaza (2014) effects of firm specific factors (underwriting risk/ risk was one of the factors) on ROA (as measure of firm profitability) using panel secondary data of 6 years consistently from 2008-2013. The study sampled 10 insurance firms. The study's findings showed that underwriting risk has a major impact on profitability (ROA). Underwriting risk, on the other hand, is inversely and significantly connected to profitability.

Mehari and Aemiro (2013) investigated the firm attributes that influence insurance businesses' profitability in Ethiopia, taking into account variables such as underwriting risk (risk), leverage, size, growth in writing premium, tangibility, age and liquidity. In testing the hypotheses of the study, multiple regression analysis was employed to analyzed panel data collected from 9 insurance firms from 2005 to 2010. The study's findings demonstrated that leverage, tangibility and insurers' size are statistically significant and positively associated to return on total asset, whereas underwriting risk is statistically significant and adversely connected to ROA as measure for firm financial performance or profitability. As a result, the scale of insurers, their underwriting risk, tangibility, and leverage are major factors of their performance in Ethiopia.

H_{01}: Underwriting risk has no significant effect on financial performance.

2.2. Moderating Role of Firm Size

Theoretically, big companies are more leveraged than smaller ones because they have more chances to expand, according to Ezeoha (2008), who stated that this leads to better financing opportunities for large firms due to their growth potential. From another viewpoint, banks tend to lend to organizations with high creditworthiness. Large companies, due to their strong reputation, are considered more eligible for loans than small businesses.

Ezeoha (2008) claimed that big companies can inspire more trust from investors than smaller ones, resulting in trust being reflected in the equity market through investment. When investors have a lot of trust, they tend to invest more, which can increase the market value of equity, though it may also lead to overvaluation. A high equity value is a strong financial indicator.

A separate study by Taani (2011) found that company size had a positive but insignificant relationship with returns. Vahid, Mohsen, and Mohammadreza (2012) revealed that firm size in addition to growth had a positive effect on profitability and value for an organization, while leverage had a negative impact. The study concluded that

size play a crucial role in determining the success or failure of an organization in terms of liquidity, profitability and productivity. Niresh and Thirunavukkarasu (2014) stated that firm size is a key factor in determining profitability due to economies of scale in the neo-classical view of the firm. This means that larger manufacturing entities have a cost advantage over smaller one. Manufacturing firms view firm size as a tool for achieving sustainable competitiveness in terms of market share and profit. Ramasamy, Ong, and Yeung (2005) noticed that the relationship between firm performance and size was unclear and recommended industry-specific analysis and caution against oversimplification. They advised researchers to approach each case individually instead of making generalizations. John and Adebayo (2013) noted that understanding the connection between firm size and profitability is crucial as it may uncover factors that increase profits in firms.

The relationship between firm size and performance has been a point of debate. Palangkaraya, Stierwald, and Yong (2009) found in their study that larger and older firms were less productive, but the evidence was not conclusive. In Prasetyantoko and Parmono (2012) that larger firms have a competitiveness over smaller ones due to better access to resources. Thus, firm size is widely recognized as a factor in the firm performance debate (Cabral & Mata, 2003; John & Adebayo, 2013; Niresh & Thirunavukkarasu, 2014; Prasetyantoko & Parmono, 2012) it is not clear how it affects the actual planning performance dynamics. Firm size was introduced as a moderating variable to assess its impact on the relationship between underwriting and performance.

H_{02}: Firm size does not significantly moderate the relationship between underwriting risk and financial performance.

2.3. Sampling

The sampling frame is the source device or material from which a study sample is drawn. It encompasses all the list of items in the population which may include, households, institutions or individuals (Creswell, 2014). Similarly, sampling frame is a hypothetical and imaginary frame that confines all the members of population of a given phenomenon from which the sample ought to be picked (Kothari, 2004). However, this study used census method since the size of the population was small. This comprised all the insurance firms that operated in Kenya from 2010 to 2018. Therefore, since the current study population consists of 54 insurance firms, a census was carried out and therefore no sample and sampling technique were required.

2.4. Variable Measurement

The study used Returns on Assets (ROA) as measure of financial performance. ROA indicates the effectiveness of the assets of a firm in generating income while ROE measures the productivity of the income utilized by a firm in its operations. The researcher used measure ROA as Earnings before Interest and Tax (EBIT) over Total Assets.

Underwriting risk indicates the losses that occur as results of over incurred claims of insurance over earned premiums companies. It signals insurance firms underwriting and operational efficiency (Berhe & Kaur, 2017). In this it measured as ratio of incurred claims value divided by earned premiums (Berhe & Kaur, 2017).

Firm size which was used as moderator in the current study was measured using log of total asset. In relation to the previous literatures, it seems to be assented that profitability of firm is positively correlated with firm size expressed as the natural logarithm of total assets. Accordingly, larger firms are more preference to reduce their costs, have motivation strength and double profitability of their assets. In this case the coefficient estimate for firm size is expected to be positive. On the other hand, a negative relation between size and profitability may expect that assets are not used efficiently (Baguley, 2012). Table 1 presents summary of variable measurement with their sources.

Table 1. Variable measurement.

Variable	How to measure	Previous studies which used this measurement method
Dependent variable		
ROA	EBIT/total assets	(Banafa, 2016; Mwongeli, 2016; Obudho, 2014)
Independent variable		
Underwriting risk	Incurred claims value/earned premiums	(Berhe & Kaur, 2017)
Moderating variable		
Firm size	Natural log of total asset	(Isik, Unal, & Ünal, 2017)

2.5. Model Specification

The study employed panel data to examine the relationship among the variables of interest. The data was processed, grouped, and analyzed using STATA statistical software. The study used hierarchical multiple regression analysis to examine the moderating effect, following the method proposed by Baron and Kenny (1986) and Frazier, Tix, and Barron (2004). Hence the following models was derived.

$$\ln(y_{it}) = \beta_{0it} + \beta_{1it} ln\, UR_{it} + \varepsilon_1 \quad 1$$

$$\ln(y_{it}) = \beta_{0it} + \beta_{1it} ln\, UR_{it} + \beta_{2it} FS_{it} + \varepsilon_2 \quad 2$$

$$\ln(y_{it}) = \beta_{0it} + \beta_{1it} ln\, UR_{it} + \beta_{2it} FS_{it} + \beta_{3it} ln\, UR_{it} * FS + \varepsilon_3 \quad 3$$

Where, ROA_{it} = Returns on Asset of insurance i at time t, UR_{it} = Underwriting risk of insurance i at time t, LIQ_{it} = Liquidity of insurance i at time t, Ln= the natural log, α_o = Constant return, μit = Composite error term , β's = Coefficient of the independent variables, FS is firm size.

3. FINDINGS AND DISCUSSION

Basing on the findings in Table 2, the insurance firms elicited high performance in 2009 and 2010 (mean = 0.10) and the lowest performance in 2016 (mean = 0.01). Further findings indicated that financial performance exhibited Further findings indicated that financial performance did not exhibit a trend over the period ranging from 2009 to 2018 (F = 1.57, p > 0.05).

Table 2. Trend analysis for firm performance.

Year	N	Min	Max	Mean	P50	Sd.	Skewness	Kurtosis
2009	6	-0.01	0.44	0.10	0.04	0.17	1.69	4.04
2010	49	-0.10	0.71	0.08	0.04	0.12	3.29	16.54
2011	49	-0.24	0.64	0.06	0.03	0.13	2.19	11.04
2012	49	-0.17	0.22	0.05	0.05	0.07	-0.56	5.16
2013	50	-0.11	2.89	0.10	0.04	0.41	6.67	46.39
2014	50	-0.13	0.36	0.05	0.04	0.08	2.14	10.15
2015	52	-0.31	0.23	0.02	0.03	0.07	-2.12	16.15
2016	50	-0.32	0.29	0.01	0.02	0.11	-1.09	5.75
2017	50	-0.67	0.22	0.02	0.03	0.12	-3.60	20.56
2018	46	-0.20	0.32	0.03	0.02	0.07	0.79	8.53
F		1.57						
Prob > F		0.1228						
Bartlett's test for equal variances: chi2(9)		353.3392						
Prob>chi2		0.000						

3.1. Trend Analysis for Underwriting Risk

Based on the results, underwiring risk decreased from 2009 to 2010, however, in had sharp increase from 2010 to 2014. It appears that the underwriting risk have exhibited a rollercoaster of ups and downs between 2009 and

2018. Notably, there is a statistically significant difference in underwriting risk for the targeted insurance firms in Kenya (F= 2.88, ρ=0.00<0.05). Also, the Bartlett's Test was significant.

3.2. Trend Analysis for Firm Size

Table 3 presents the descriptive statistics of firm size for the targeted insurance firms in Kenya. From the table below, the firm size for the insurance firms was at a mean ratio of 9.26 in 2009 while at its highest in 2018 (mean = 9.71). The minimum firm size was 8.36 while the maximum 10.9. Further findings indicated a statistically significant difference in firm size for the targeted insurance firms (F= 2.53, ρ=0.00<0.01). Also, the Bartlett's Test was significant.

Table 3. Trend analysis for firm size.

Year	N	Min	Max	Mean	P50	Sd.	Skewness	Kurtosis
2009	6	8.63	9.82	9.26	9.22	0.41	-0.16	2.29
2010	49	8.45	10.42	9.38	9.34	0.46	0.24	2.48
2011	49	8.49	10.45	9.43	9.37	0.47	0.28	2.59
2012	49	8.59	10.53	9.54	9.47	0.49	0.34	2.40
2013	50	8.38	10.65	9.58	9.56	0.51	0.15	2.82
2014	50	8.65	10.74	9.63	9.62	0.48	0.27	2.71
2015	52	8.68	10.79	9.70	9.69	0.50	0.10	2.66
2016	50	8.67	10.84	9.58	9.56	0.49	0.45	2.79
2017	50	8.44	10.84	9.62	9.55	0.48	0.42	3.23
2018	48	8.36	10.90	9.71	9.72	0.44	-0.19	4.11
F	2.53							
Prob > F	0.01							
Bartlett's test for equal variances: Chi2(9)	1.69							
Prob>chi2	1.00							

3.3. Correlation

From the findings in Table 4, the relationship between underwriting risk and financial performance was found to be negative and significant, ρ = -0.218, p-value < 0.01. Finally, the relationship between firm size and financial performance was found to be negative and significant, ρ = -0.292, p-value < 0.01.

Table 4. Correlation results.

		ROA	UR	FS
ROA	Pearson correlation	1		
	Sig. (2-tailed)	0.000		
UR	Pearson correlation	-0.218**	1	
	Sig. (2-tailed)	0.000		
FS	Pearson correlation	-0.292**	0.157**	1
	Sig. (2-tailed)	0.000	0.001	

Note: ** Correlation is significant at the 0.01 level (2-tailed).
ROA =Retrun on asset, UR=Underting riks, FS=Firm size

3.4. Test of Hypotheses

Based on Hausman test, hypotheses were tested using the random effects model. From Table 5. results showed that model 3 indicated overall R-sq of .64 indicating that underwriting risk, firm size and interaction of firm size with underwriting risk contribute to 65% of financial performance of insurance firms.

Hypothesis 2 (H_{o1}) stated that underwriting risk has no significant effect on financial performance. However, the regression results indicated that underwriting risk had a negative and significant influence on financial performance (β_2= -0.142, ρ<.05). The null hypothesis was therefore not accepted, and it was concluded that an

increase in underwriting risk by 0.142 units, leads to a decrease in financial performance by the same unit. The findings concur with Wongsuwatt et al. (2020) that revealed that underwriting risk had negative effect on financial performance of non-life insurance firms In Thailand. Similarly, Malik (2011) in Pakistan showed that underwriting risk had a negative but substantial link with profitability. In agreement, Doumpos et al. (2012) found that underwriting risk had significant but negative effect on financial performance of non-life insurance companies. Also, Mistire (2015) revealed that underwriting risk was negatively correlated with profitability of insurance companies. Meaza (2014) underwriting risk, on the other hand, is inversely and significantly connected to profitability. In addition, Kazeem (2015) result showed underwriting risk have a negative relationship. However, on contrary to the findings, Berhe and Kaur (2017) revealed financial performance of non-life insurance firms was positively associated with underwriting. Mehari and Aemiro (2013) underwriting risk was statistically significant and positive in explaining the performance of Ethiopian insurance companies. Further, Daare (2016) findings show that underwriting risk is connected to return on investment (ROI). Nevertheless, Teklit and Jasmindeep (2017) revealed that underwriting had insignificant impact of profitability of insurance firms. Similarly, Ejigu (2016) revealed that underwriting risk has no effect Insurance firms' profitability in Ethiopia.

Hypothesis H_{O2} stated that firm size has no significant moderating influence on the relationship between underwriting risk and financial performance of insurance firms. Findings on UR*FS had negative significant estimates of -0.70, P<0.05 and there was change of R-sqΔ =.01, thus, the hypothesis was rejected. This shows that there was a negative and significant moderating effect of firm size on the relationship between underwriting risk and financial performance (β= -0.70; ρ<0.05). Evidently, the inclusion of firm size as a moderator changes the direction of the relationship between underwriting risk and financial performance. Therefore, firm size weakens the relationship between underwriting risk and financial performance.

Table 5. Moderating effect of firm size on the relationship between firm characteristics and financial performance.

	Model 1	Model 2	Model 4
ROA	**Coef (S. Err.)**	**Coef (S. Err.)**	**Coef. (S.Err.)**
UR	-0.14(0.02) **	-0.14(0.02) **	-1.74(0.02) **
FS		-6.74(2.09) **	18.25(18.76)
UR*FS			-0.70(.35) *
_cons	-2.16(1.32)	11.68(3.55) **	-49.71(42.35)
R-sq:			
Within	0.60	0.62	0.62
Between	0.63	0.64	0.64
Overall	0.62	0.63	0.64
R-sqΔ		0.01	0.01
Wald chi2(10)	614.58	666.32	665.79
Prob> chi2	0.000	0.000	0.000
Sigma_u	0.66	0.65	0.67
Sigma_e	0.81	0.79	0.77
Rho	0.40	0.40	0.43

Note: **Significant at 0.01 level; *Significant at 0.05 level.
EC=Equity capital, UR=Underwiring risk, LEV = Leverage, LIQ = Liquidity, FS=Firm size.

The moderating effect of firm size on all the predictor variable underwriting risk and firm performance (ROA) was determined using a graphical method. The findings are shown in Figure 1.

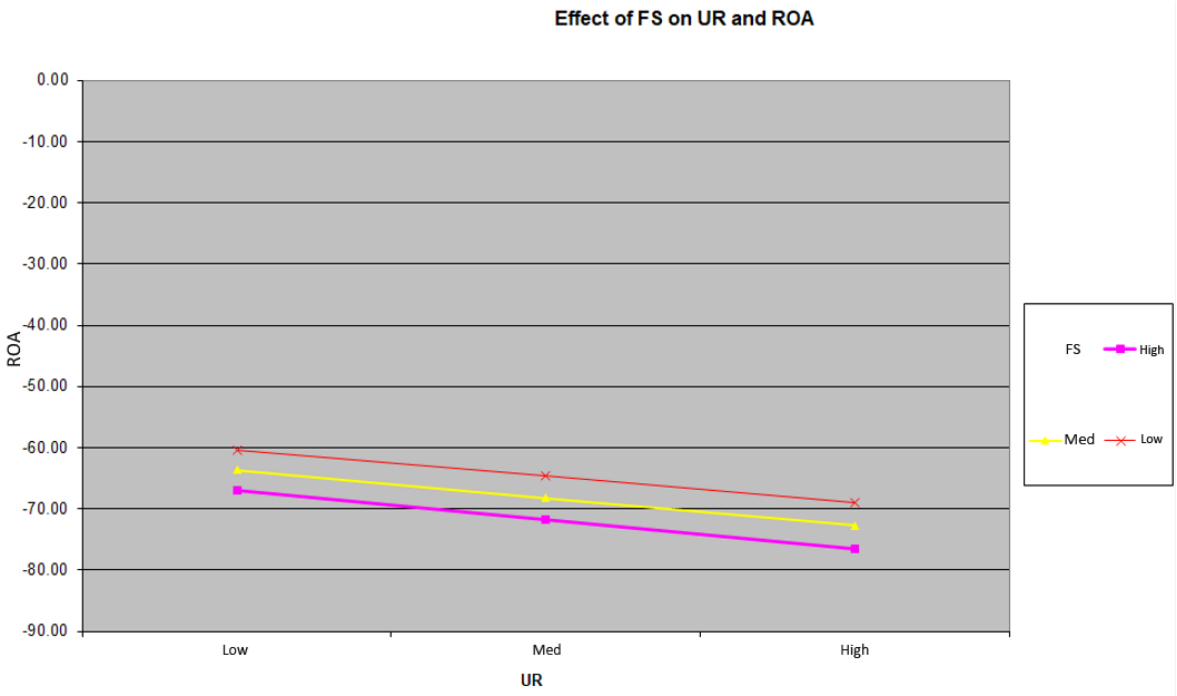

Figure 1. Mod graphs for moderating effect of firm size on the relationship between underwriting risk and financial performance.

The graph in Figure 1 revealed that with an increase in firm size, there is a negative contribution of Underwriting risk to financial performance. Thus, firm size negatively and significantly moderates the relationship underwriting risk and financial performance. This shows that at high levels of firm size, underwriting risk negatively affect firms performance.

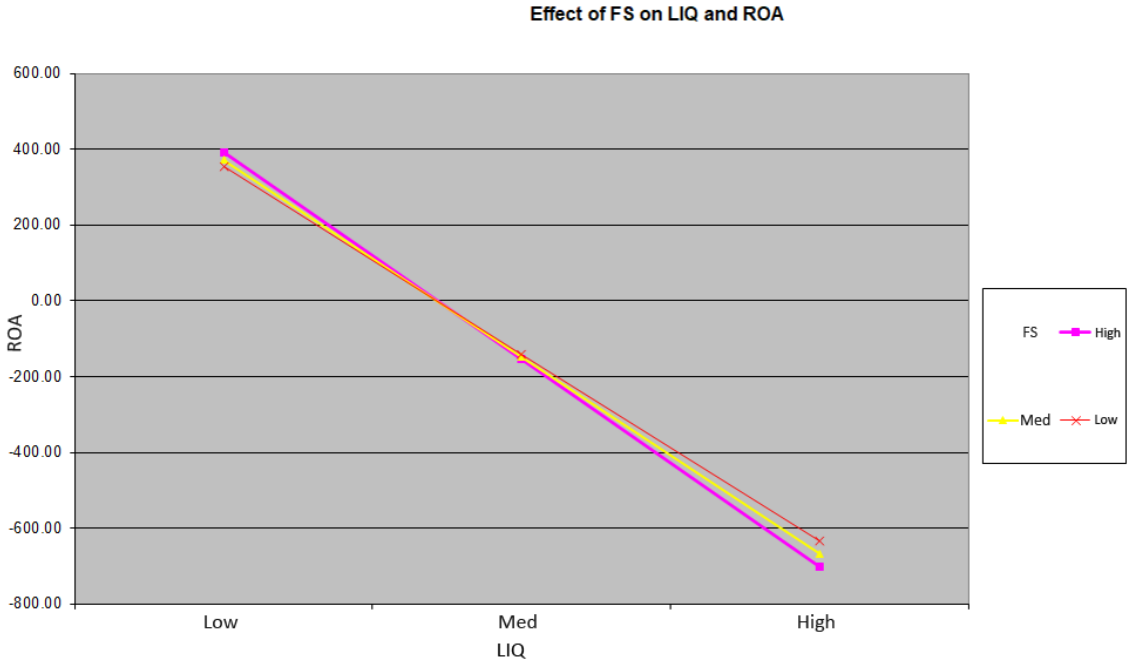

Figure 2. Modgraphs for moderating effect of firm size on the relationship between liquidity and financial performance.

Figure 2 demonstrated that an increase in firm size brought about a negative slope between liquidity and financial performance. This implied that firm size negatively and significantly moderates the relationship between liquidity and financial performance.

4. CONCLUSION

Besides, the study findings elicited a negative link between underwriting risk and financial performance. Notably, underwriting risk reduces the profitability of insurance operations and overall profitability. Also, the results suggest that insurance firms that underwrite less premium over the years reduces financial performance. The explanation for this is that the insurance companies benefit from premium collected.

In addition, firm size was significantly and negatively moderating the relationship between underwriting risk and financial performance. This infers that the large the firms, the more underwriting risk will decrease the financial performance of insurance firms in Kenya. This shows that large firms are have low underwriting capabilities, which because of their large number of customers cause incurred claims to be higher than total premiums paid hence decreasing firms' financial performance.

5. THEORETICAL IMPLICATIONS

Firm size negatively moderated the relationship between; underwriting risk and financial performance, leverage and financial performance as well as liquidity and financial performance. The findings reinforce the agency theory which argues that increase in the size of an organization brings about the diseconomies of scale and hence the reduction in the profitability.

6. RECOMMENDATIONS

It is t essential for the firms to divert their focus towards increasing premium to enhance the financial performance of the insurance companies. Further, while increasing the gross premium, the insurance firms should ensure that it does not compromise stringent underwriting policies that would eventually lead to high claim costs and a decline in the profits. This means that a profit-oriented insurance firm must therefore embrace a claims function that is closely related with the underwriting and pricing of the firm's portfolio for meaningful results. The findings will help firms in the region to focus more on their risk assessment and claims management programs and adopt models that will enhance their performance.

Large insurance firms, have underwriting risk which negatively affect financial performance. Despite increase in firm size being reported as key determinants for financial performance due to increase in economic scale, it can also results diseconomies of scale and reduce the firm's profitability. Further, it also concludes that the financial performance decreases moderately with the increase in underwriting risk in Kenyan insurance companies. Thus, Thus, in order to optimize profit, the companies should focus on the management of their total asset, long-term investment, current assets and current liabilities. The study sheds light upon the fact that insurance companies that operate in Kenya benefit more when they maintain liquid assets. The increase in observations in secondary data or the inferences drawn from the respondents might have brought the conclusive effect of liquidity on financial. Insurers should maintain an ideal level of asset, which will result in increased profitability. Insurers should think about investing in high-return projects.

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