Profitability of General Insurance Underwriters in Kenya: Does Firm Size Matter?

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Abstract

The objective of the study was to determine the relationship between size and profitability of general insurance companies in Kenya. The study used an unbalanced panel of all general insurance companies in Kenya for the five year period 2012 to 2016 (the number ranged from 34 to 37). Regression analysis was used to relate size (proxied by log of total assets) against financial performance (ROA, ROE and then quarterly by size for ROE). Using ROA as a measure of profitability, the findings were that the effect of size on financial performance of general insurance companies in Kenya was insignificant. When performance was measured by ROE, the effect of size on profitability was significant and positive, but only explaining 3% of the variability in performance. Indeed, the effect of size on profitability (ROE) was not significant when the general insurance firms were partitioned into quarters, meaning that among similar sized companies, the size effect disappeared. Size therefore appears not to be a major determinant of profitability of general insurance companies in Kenya. Further research should be carried out to establish the reason why this is so.

Keywords: General insurance underwriters, Kenya, size, profitability

Introduction

General insurance underwriters are companies that receive specified risks from insureds at a price referred to as insurance premium. They promise to compensate the insured in the event that they suffer loss from specified future events (Choi, 2010; Doff, Bilderbeek, Bruggink & Emmen, 2009; Elango, Ma & Pope, 2008; and Calandro & Lane, 2002).

Profitability refers to the excess of sales over costs incurred in generating these revenues, appropriately standardised. There are several ways that profitability is measured, including return on equity, return on assets, sales profitability, gross margin rate. Profitability of general insurance companies refers to how well the firm is attaining the objective of its establishment (Almajali, Alamro & Al-Soub, 2012; Calandro, 2006; Pottier & Sommer,1999; and Berger & Humphrey, 1997).

The size of a general insurance underwriter depicts how large the firm is. There are many ways in which size is measured, including, total assets, gross premiums written, and capital. Larger firms are expected to perform better than smaller ones, since among other reasons, they can harness market power and also could enjoy economies of scale and scope (Almajali et al, 2012; Berry, Liebenberg, Ruhland & Sommer, 2012; Chen & Wong, 2004).

The contribution of the insurance subsector in Kenya to the GDP of the country has risen from 1.1% in 2012, peaked at 2.0% in 2014 and then reduced to 1.5% in 2016 (Kenya National Bureau of Statistics, 2017). Insurance density (annual premiums per capita) has increased from KShs 2,750 in 2012 to KShs 4,300 in 2016. However, insurance penetration (premiums written to GDP) has been relatively constant, moving from 2.6% in 2012 to 2.7% in 2016 (Insurance Regulatory Authority, 2016).

Empirical results of tests of the effect of size on profitability of general insurance companies are divided and inclusive. For example, Mwangi and Iraya (2014) found the effect of size on profitability to be insignificant; Shim (2017), Kaya (2015) and Mehari and Aemiro (2013) all found positive significant effect; while Mwangi and Murigu (2015) and Ortynski (2016) found significant negative. The objective of this study was to determine the effect of size on financial performance of insurance companies in Kenya. The null hypothesis was therefore: H_0: The effect of size on financial performance of general insurance companies in Kenya is not significant.

Further, the study sought to establish whether the effect of size on financial performance of insurance companies in Kenya was the same at varying size levels.The rest of the paper is organised as follows: The theoretical and empirical literature is briefly reviewed; the methodology that was employed is explained; the results of the empirical analysis are provided; and the paper ends with a conclusion.

Literature Review

The larger the firm, the better is its performance expected to be. The reasons for this are varied and include the ability of bigger firms to harness market power and enjoy economies of scale and scope. Firms would exercise market power where there is industry concentration characterised by the larger players charging more than the average prices of the industry. These higher prices, holding costs constant, would translate into higher profitability for the larger firms as compared to the smaller ones. The economies of scale thesis argues that larger firms have lower average costs of production. As output increases, the marginal costs decrease and hence average unit cost decreases. This represents a gain in efficiency which results in increased profitability of the firms as they become larger. The consequence of these two factors, market power and economies of scale, is that larger firms would be more profitable than smaller ones (Abiodun, 2013; Almajali et al, 2012; Berry et al, 2012; Chen & Wong, 2004; Hirao & Inoue,2004; Scherer, 1973; Hall & Weiss, 1967; Stekler, 1964; Alexander, 1949).

Many empirical studies have been conducted in order to determine whether larger firms are more profitable than smaller ones. The relationship between market concentration and financial stability in the U.S. property-liability insurance industry was investigated by Shim (2017) using data for the period 1992- 2010. The study established that larger firms were likely to be more stable than smaller insurers, indicating that large companies are more profitable than small ones. This is in line with what theory predicts. Ortynski (2016) studied the effect of various factors (including size) on profitability (using ROA and ROE among others) of general insurance companies in Poland. The study used an unbalanced panel (8 firms for 6 years and 7 companies for 2 years) for the period 2006 – 2013. Size had a significant and positive effect on ROA. However, size was found to have a significant and negative effect on ROE. The results could therefore be viewed as inconclusive.

The factors that influence financial performance of general insurance underwriters in Kenya were investigated by Mwangi and Murigu (2015). They studied all the general insurance companies in Kenya for the period 2009-2012 and they established that the effect of size on profitability was significant and negative. The study used the arithmetic mean over the four year period to measure the variable for each of the underwriters. This may have contributed to the findings being contrary to the prediction by theory. Kaya (2015) used 24 non-life insurance companies for the period 2006 – 2013 to assess the effect of several factors on profitability of these firms. The factors used were size, age, loss ratio, insurance leverage ratio, current ratio, premium growth rate, share of motor insurance and premium retention ratio. Profitability was measured using technical profitability (technical profits to gross written premiums) and sales profitability (profit before tax to gross written premiums). Size had a significant and positive effect on both the technical and sales profitability, as theory predicts.

Mwangi and Iraya (2014) sought to establish the effect of some factors (growth of premiums; size of insurer; retention ratio; earning assets; investment yield; loss ratio; and expense ratio) on financial performance of general insurance companies in Kenya. Data used was for 22, 23 and 25 underwriters for the years 2010, 2011 and 2012 respectively. The results were that size of underwriter was not significantly related to profitability as would have been expected. Mehari and Aemiro (2013) investigated how size, leverage asset tangibility, loss ratio, growth in written premiums, liquidity and age influence profitability of insurance companies in Ethiopia. They used a panel of 9 insurance companies for the period 2005 -2010. The effect of size on profitability was significant as predicted by theory.

Methodology

The population of the study comprised all general insurance underwriters operating in Kenya for the five year period 2012 to 2016. They ranged in number from a minimum of 34 (in 2012) to a maximum of 37 (in 2016), yielding an unbalanced panel of 179 data points. As per the research objective, the linear regression model used was:

$FP_i = \alpha + \beta SZ_i + \varepsilon$ Where: FP_i= Financial performance of insurance company i; α = intercept, a sample-wide constant; SZ_i = Size (log of total assets) of insurance company i; ε = error term; β= coefficient for size.

Several regressions were run with respect to financial performance. These were:

a) FP = Return on assets (ROA) = Profit before tax/Total assets

b) FP = Return on equity (ROE) = Profit before tax/Total equity

c) FP as in b) but in four quarters partitioned using descending order of size of the panel data

Operationalisation of size and financial performance (ROA) was similar to Mwangi and Iraya(2014), and Mehari and Aemiro (2013). Ortynski (2016) also used ROE. Partitioning of the data by size, which is basically assessing whether the size to profitability effect holds at different sizes of firms, is along the lines adopted by Terraza, (2015), who partitioned commercial banks into large, medium and small, Dahmash, (2015) who compared top 30% with bottom 30%, and Chang, Nieh and Peng (2011), who partitioned the panel data into four quarters.

Results and Discussions

The results are provided in two sections, the descriptive statistics and then the test of the hypothesis.

Descriptive Statistics

The profit before tax ranged from a maximum of KShs 1.9 billion to an annual loss of KShs 0.6 billion, with an arithmetic mean of KShs 0.3 billion. Total assets were from KShs 629 million to KShs 16 billion (arithmetic mean of KShs 4.2 billion), while shareholder's funds were from KShs 199 million to KShs 8.8 billion (arithmetic mean of KShs 1.6 billion).

The annual trend of arithmetic mean of profit before tax is shown in Figure 1 (in the Appendices, as are all the other Figures). It shows a relatively constant trend during the first three years and then a sharp decline during the final two years. The annual trend of arithmetic mean of total assets is shown in Figure 2. The trend is generally upward sloping. Shareholder's funds increased over time as shown in Figure 3, but faster initially and then tapering off during the last year. Indeed, shareholder's funds increased at a higher rate than total assets, with the multiple of the latter to the former decreasing from 3.1 in 2012 to 2.7 in 2016. The annual trend of arithmetic mean of return on assets is shown in Figure 4. It shows a rapidly declining position as a consequence of decreasing profits and increasing assets. Figure 5 depicts the annual trend of arithmetic mean of return on equity. The trend, though similar to that of return on assets depicted in Figure 4, shows a faster decline since equity rose at a faster rate than assets. Figure 6 shows Log of total assets trend over time, which is generally up ward sloping.

Hypothesis Testing

The study was to test the null hypothesis, H_0: The effect of size on financial performance of general insurance companies in Kenya is not significant. The results (Table 1) showed that the effect of size on profitability (ROA) of general insurance companies in Kenya was not significant (Sig.>0.05).

Table 1: Regression Results for Return on Assets as Dependent Variable and Log of Total Assets as Predictor

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.141a	0.020	0.014	7.405

a. Predictors: (Constant), Log of total assets

b. Dependent Variable: Return on assets (%)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	196.867	1.000	196.867	3.591	.060b
	Residual	9,704.338	177.000	54.827		
	Total	9,901.205	178.000			

a. Dependent Variable: Return on assets (%)

b. Predictors: (Constant), Log of total assets

Coefficients_a

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	(13.692)	10.624	(1.289)	0.199
	Log of total assets	3.100	1.636	1.895	0.060

a. Dependent Variable: Return on assets (%)

Table 2 depicts the results when profitability was measured using ROE. The effect of size on profitability (ROE) of general insurance companiesin Kenya was now significant ($\beta = 14.591$, Sig.=< 0.05). However, size accounted for only 3% of the variance in profitability of general insurance companies.The analytical model which was: $FP_i=\alpha+\beta SZ_i+\varepsilon$, is therefore specified as: $ROE_i= -80.006+14.591*Log_{10}Total\ assets_i$

Table 2: Regression Results for Return on Equity as Dependent Variable and Log of Total Assets as Predictor

Model Summary_b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.183a	0.033	0.028	26.726

a. Predictors: (Constant), Log of total assets

b. Dependent Variable: Return on equity (%)

ANOVA_a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,361.356	1.000	4,361.356	6.106	.014b
	Residual	126,427.386	177.000	714.279		
	Total	130,788.742	178.000			

a. Dependent Variable: Return on equity (%)

b. Predictors: (Constant), Log of total assets

Coefficients_a

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	(80.006)	38.347	(2.086)	0.038
	Log of total assets	14.591	5.905	2.471	0.014

a. Dependent Variable: Return on equity (%)

Tables 3 to 6 shows the results after the data points were disaggregated by size in descending order, starting with largest to smallest. ROE was used as the dependent variable. Results for the largest quartile (Table 3) show an insignificant effect of size on ROE (Sig.>0.05). This means that size was not a significant predictor of profitability amongst the largest general insurance companies.

Table 3: Regression Results for Return on Equity as Dependent Variable and Log of Total Assets as Predictor – Largest Quartile

Model Summary_b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.163a	0.026	0.004	14.576

a. Predictors: (Constant), Log of total assets

b. Dependent Variable: Return on equity (%)

ANOVA_a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	248.449	1.000	248.449	1.169	.286b
	Residual	9,136.346	43.000	212.473		
	Total	9,384.795	44.000			

a. Dependent Variable: Return on equity (%)

b. Predictors: (Constant), Log of total assets

Coefficients_a

Model		Unstandardized Coefficients B	Std. Error	t	Sig.
1	(Constant)	127.536	98.752	1.291	0.203
	Log of total assets	(15.368)	14.212	(1.081)	0.286

a. Dependent Variable: Return on equity (%)

The second largest quartile (Table 4) also had size having an insignificant effect on ROE (Sig.> 0.05).

Table 4: Regression Results for Return on Equity as Dependent Variable and Log of Total Assets as Predictor – Second Largest Quartile

Model Summary_b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.107a	0.011	(0.012)	27.268

a. Predictors: (Constant), Log of total assets

b. Dependent Variable: Return on equity (%)

ANOVA_a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	368.689	1.000	368.689	0.496	.485b
	Residual	31,971.765	43.000	743.529		
	Total	32,340.454	44.000			

a. Dependent Variable: Return on equity (%)

b. Predictors: (Constant), Log of total assets

Coefficients$_a$

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	(238.800)	365.639	(0.653)	0.517
	Log of total assets	39.212	55.684	0.704	0.485

a. Dependent Variable: Return on equity (%)

Results for the third largest quartile (Table 5) also show an insignificant effect of size on ROE (Sig.> 0.05).

Table 5: Regression Results for Return on Equity as Dependent Variable and Log of Total Assets as Predictor – Third Largest Quartile

Model Summary$_b$

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.125a	0.016	(0.008)	31.870

a. Predictors: (Constant), Log of total assets

b. Dependent Variable: Return on equity (%)

ANOVA$_a$

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	673.735	1.000	673.735	0.663	.420b
	Residual	42,660.369	42.000	1,015.723		
	Total	43,334.105	43.000			

a. Dependent Variable: Return on equity (%)

b. Predictors: (Constant), Log of total assets

Coefficients$_a$

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	(419.490)	529.062	(0.793)	0.432
	Log of total assets	67.798	83.245	0.814	0.420

a. Dependent Variable: Return on equity (%)

Similarly the lowest quartile (Table 6) also shows an insignificant effect of size on ROE (Sig.> 0.05).

Table 6: Regression Results for Return on Equity as Dependent Variable and Log of Total Assets as Predictor – Smallest Quartile

Model Summary$_b$

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.024a	0.001	(0.023)	30.724

a. Predictors: (Constant), Log of total assets

b. Dependent Variable: Return on equity (%)

ANOVA$_a$

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.030	1.000	23.030	0.024	.877b
	Residual	40,591.532	43.000	943.989		
	Total	40,614.562	44.000			

a. Dependent Variable: Return on equity (%)

b. Predictors: (Constant), Log of total assets

Coefficients$_a$

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	(26.802)	220.341	(0.122)	0.904
	Log of total assets	5.667	36.284	0.156	0.877

a. Dependent Variable: Return on equity (%)

When profitability was measured using ROA, the effect of size was not significant. The results were similar to those of Mwangi and Iraya (2014). They differed from those of Mwangi and Murigu (2015) (who found significant negative effect) and those of Shim (2017), Ortynski (2016), Kaya (2015) and Mehari and Aemiro (2013) (all who found a positive significant effect). The study found that the effect of size on financial performance (ROE) of general insurance companies in Kenyawas significant and positive. However, the results were contrary to those obtained by Ortynski (2016) (who found that size had a significant and negative effect on ROE). The effect of size on profitability (ROE) was not significant when the general insurance firms were partitioned into quarters, meaning that among similar sized companies, the size effect disappeared.

Conclusion

The objective of the study was to determine whether the effect of size on the financial performance of general insurance companies in Kenya was significant. The null hypothesis was: H_0: The effect of size on financial performance of general insurance companies in Kenya is not significant.It also sought to establish whether the relationship between size and financial performance was similar across the entire size spectrum. The findings were that the effect of size on financial performance of general insurance companies in Kenya was insignificant when ROA was used to measure profitability. In this case, the null hypothesis was not rejected. When performance was measured by ROE, the the effect of size on profitability was significant and positive, hence, the null hypothesis was rejected. However, size only accounted for 3% of the variability in ROE. The effect of size on profitability (ROE) was not significant when the general insurance firms were partitioned into quarters, meaning that among similar sized companies, the size effect disappeared. The overall conclusion of the study is that size does not appear to be a major determinant of performance of general insurance companies in Kenya.

The implication of these findings, which will require further investigation, could be that larger insurance firms are not able to harness market power (by for example charging higher premiums than smaller insurers for similar risks). This would occur in instances where firms tend to price similar risks at the same rate especially when customers are very price sensitive. The results would also tend to suggest the non-existence of economies of scale (where marginal cost decreases with size, and hence also average cost). This would also require further investigation. These further studies require to be carried out before managers; shareholders and policy makers are advised why size of the general insurance company in Kenya should not be a key area of focus.

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Appendices

Figure 1: Arithmetic mean of profit before tax

Figure 2: Arithmetic mean of total assets

Figure 3: Arithmetic mean of shareholder's funds

Figure 4: Arithmetic mean of return on assets

Figure 5: Arithmetic mean of return on equity

Figure 6: Arithmetic mean of log of total assets