Examining the relationship between non-life insurance premiums and economic growth in Namibia

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Abstract: **The impact of insurance market activity on financial development is gaining academic attention as the insurance sector grows in emerging markets. This research aims to examine the relationship between non-life insurance premiums and economic growth in the Namibian context by providing recommendations to drive increased penetration across the Namibian economy. The study scrutinizes the explanatory factors of non-life insurance demand in Namibia, using quarterly data from Q1:2010 to Q4:2020 and also the Ordinary Least Square Method. The variables employed were; Gross domestic product, gross written premiums, reinsurance exemption, and inflation. The study revealed that there was a positive relationship between non-life insurance premiums and economic growth in Namibia. The study also revealed a positive relationship between reinsurance exemption and economic growth in Namibia. Lastly, a negative relationship was observed between inflation and economic growth in Namibia. The results of this study provide opportunities for further research in this area given the limited empirical literature that currently exists.**

Keywords: **insurance market activity, financial development, insurance sector grows, non-life insurance premiums.**

1. INTRODUCTION

Bill (2019) defines insurance as a tool used by policyholders to shift risks. As such insurance plays a pivotal role in ensuring that risks are shifted from the consumers of the financial services industry. Non-life insurance companies collect premiums from policyholders, issue them with insurance contracts and compensate them should a claim event occur. Namibia has 14 registered non-life insurance companies in terms of the Short-Term Insurance Act, Act No. 4 of 1998. The aforementioned registered insurance companies are supervised and regulated by the Namibia Financial Institutions in terms of the Short-Term Insurance Act, Act No. 4 of 1998, Insurance Core Principles, Circulars, Directives, and Regulations. The main purpose of supervision is to ensure that consumers of the financial services industry are protected and the entire financial system remains financially sound.

Non-life insurance companies in Namibia mainly underwrite the following types of risks; Marine, Vehicles, Fire, Personal, Guarantees, Aviation, and Miscellaneous. Section 20 of the Short-Term Insurance Act, Act No.4 of 1998 requires a minimum capital requirement of N\$4.0 million to be maintained at all times by the insurers registered for all classes of short-term insurance business and in an event, such registered insurer(s) failed to maintain a solvency margin of N\$4.0 million, the Registrar of Short-term insurance business imposed penalties in terms of section 70 of the Short Term Insurance Act, Act No. 4 of 1998.

The insurance industry of Namibia is required to comply with the compulsory per policy cession of the national reinsurer i.e. Namibia National Reinsurance Corporation which requires 12.5% of every policy underwritten in Namibia to be ceded to the National reinsurer, as this ensures that capital remained within the domestic economy and contribute to the economic growth of the country.

The National reinsurer does not have sufficient capital to absorb insurance risk underwritten by the local insurer and this may result in premiums leaving the domestic economy to foreign countries in form of exemption.

Regulation 8 of the Short-Term Insurance Act, Act No. 4 of 1998, requires the non-life insurance industry to maintain at least 45.0% of their total assets domestically. The main purpose of the aforementioned requirement is to mitigate concentration risk and also to ensure that the insurance industry contribute to the economic growth of the domestic economy. During the year ended 31 December 2021, the short-term insurance industry for Namibia complied with Regulation 8 of the Short Term Insurance Act, Act No. 4 of 1998, for the reason that more than 45.0% of the total assets were held domestically.

Gerber (2009) defines economic growth as an increase in the real gross domestic product. As such, economic growth is deemed as a prerequisite to economic development.

Some non-life insurance companies in Namibia are regarded as systematically important financial institutions, meaning their failures may trigger financial crisis and also affect the resilient of the entire financial system. Accordingly, the failure of those entities may result in a lower than expected economic growth.

Nonetheless, the short-term insurance industry for Namibia was resilient as of 31 December 2021, meaning it had sufficient reserves to honor its unforeseen policyholders' obligations when these fall due. For this reason, the industry reported claims amounting to N$531,0 million as of 31 December 2021 and also generated significant profits amounting to N$87.8 million despite the current macroeconomic climate (recession) coupled with the adverse impact of COVID-19.

2. LITERATURE REVIEW

Richard and Paul (2007) have reported that economic growth occurs every time people take natural resources and transform them into other, more valuable actions.

The importance of economic growth as a measure of a country's economic performance is that increased economic growth leads to economic development. Economic development does not exist without economic growth. As a result, an increase in gross domestic product per capita leads to economic development, which means an improvement in the standard of living of the average person in the country. Economic growth is therefore considered to be a prerequisite for economic growth.

Fourie and Borgaerde (1991) defined economic growth as the rate of increase in gross national product and real national income. They further stated that when gross domestic product is fully employed, economic growth will occur, and when employment is fully utilized, economic growth will increase.

Smith (1954) revealed that there is a natural harmony in economic life. Smith described it as the invisible hand force that stabilizes the market. In addition, Smith appreciated the role of innovation in the process of economic growth. However, as Mike Brewer (2011) indicated in Smith's concept, technological progress is not independent, it merely passively follows capital accumulation.

Thomas and Karl (1951) general views on economic growth can be gathered from the classics. For example, Smith and Ricardo determined economic growth through production and shared the "law of the market" developed by Jean-Baptiste. According to Smith, increased production affects the size of the market, and more specifically its expansion. Ricardo, on the other hand, saw money simply as a medium of exchange used to buy and sell goods and services. The same view of the role of supply in the process of economic growth was held by Marx, who recognized its important role in the economy. But unlike Smith and Ricardo, he disagreed with Say's "law of the market." According to Marx, there is no logical justification for the belief that supply is likely to generate demand when the capitalist economy experiences a regular crisis of overproduction. Malthus held a different view of the determinants of economic growth, which made it dependent on effective demand. Therefore, he shared Keynes's views.

Thomas (1823) was pessimists and assumed that profits from factors related to the production process were declining. A similar opinion was held by Marx who attributed the process of increasing the organic composition of capital to lower profit margins. However, Smith's assumption of increasing input productivity was inconsistent with the rules of a highly competitive market.

Alfred (1890) sought to explain the incompatibilities proposed by Smith. He introduced the difference between the internal economy and the external economy. According to Marshall, the reduction in production costs is the result of both the growth of the company itself and the general development of the industry.

Classical economists have examined the determinants of economic growth in improving investment and capacity. In the first half of the 20th century, neoclassical economics identified three economic growth factors: land, capital, and labor. The above factors were sufficient to explain the cause of economic growth in capitalist countries. Larger exploitation of these factors could ultimately lead to higher economic growth.

Pierre (1847) divulged the economic contradictions that can contribute to the destruction of production and cause tensions in the production process. The issue of economic growth raises the issue of the driving force that determines growth and economic development.

In his article, Robert (1957) showed a small contribution of land, capital, and labor to United States economic growth and pointed out technological advances as a source of United States growth.

Mushendami (2007) revealed that the Thoreau growth model focuses on the behavior of potential output, that is, the explanation of the output obtained by making the best use of specific techniques and other factors. The focus is on the temporary impact of changes in the workforce, capital, and technology. Changes in the workforce can be caused by changes in the population and the proportion of people available for work, but changes in capital depend on net investment (total investment minus depreciation of available capital). As long as the net investment is positive, capital will grow, followed by production growth. The technology combines other inputs, workforce, and capital to produce output. Therefore, if there is no change in either input, the growth is considered to be due to a technological change.

Robert (1988) proposed a model of endogenous growth. According to this, there are two sectors: physical capital used in the production process and human capital, which influences the growth of productivity in both labor and physical capital.

The importance of economic growth as a measure of a country's economic performance is that increased economic growth leads to economic development. Economic development does not exist without economic growth, so an increase in gross domestic per capita leads to economic development, which means an improvement in the standard of living of the average person in the country. In short, economic growth is a prerequisite for economic growth. It is worth noting that economic growth improves living standards, which leads to economic development.

Denuit (2007) described the reverse choice as a phenomenon that attracts insurance policies that occur when policyholders are more familiar with the behavior of claims than insurance companies and use information that insurance companies do not know.

Bland (1999) highlighted that insurers can only continue to operate if their customers trust in good faith. The risk that an insurer takes is essentially the risk of challenging the good faith behavior of the business. The risk lies in the area of moral hazard fraud between insurance buyers and sellers, rather than the area of higher mathematical and legal complexity that results from the naive design of insurance terms.

Chiapporiand (2006) emphasized that moral hazard occurs when the potential risk depends on the insured's behavior and decisions. The difference between the two phenomena is also pointed out by (Dionne, Michaud & Pinquet, 2013). They argued that negative selection was the effect of unobserved differences between individuals that affect the optimality of underwriting, and moral hazard is the effect of contracts on individuals. Unobserved behavior. In other words, in the context of the insurance market, information issues can be defined as the impact of applying the same premium to the entire portfolio. Basically, this assumes that the unfavorable risk was also guaranteed (at a lower price compared to the actual cost of taking the risk) and discourages guaranteeing a moderate risk.

Ward and Zurbruegg (2000) used annual real gross domestic product growth and annual real growth as a measure of economic production and the relationship between economic growth and non-life insurance market activity in nine Organisation for Economic Co-operation and Development countries from 1961 to 1996. They found that insurance could lead to economic growth in some Organisation for Economic Co-operation and Development countries.

Lee and Chang (2014) studied the relationship between insurance and economic growth in the Organization for Economic Co-operation and Development 10 countries by applying the bootstrap Granger causal model for 27 years (1979-2006). They have revealed this one-way Granger causality from all insurance activities to economic growth. In addition, economic growth was driving Granger's insurance activities for real estate insurance.

Haissand (2008) applied a panel data analysis from 1992 to 2004 in 29 Organization for Economic Cooperation and Development countries to investigate the relationship between non-life insurance premiums and economic growth. They found that non-life insurance premiums had a different impact on a country's economic growth. For example, non-life

insurance was becoming more important in 15 Organization for Economic Cooperation and Development countries, and life insurance was of equal importance in the remaining 14 countries.

Ege and Bahadır (2011) also used the generalized method of moments to examine the relationship between premiums and economic growth based on 29 Organization for Economic Cooperation and Development panel data from 1999 to 2008. Their results revealed that there was a positive and significant link between non-life insurance premiums and economic growth.

Francois (1990) conducted an original study of the relationship between insurance development and economic growth in developing countries. His results disclosed that both non-life and life insurance generate economic growth.

Levine (2004) cited that most empirical studies on economic growth have generally addressed the impact of the banking sector and capital markets on economic growth. Although the potential contribution of the insurance market to economic growth was recognized, the assessment of the potential causal relationship between the insurance business and economic growth has not been studied as much as banks . However, since 1964, within the framework of the United Nations Conference on Trade and Development Conference, the importance of insurance in the process of national economic growth has been well recognized. This was because it was regarded as a very important national sector, which was an essential feature of a proper economic system.

3. METHODOLOGY OF THE STUDY

RESEARCH METHODS

This study used secondary data from the Namibian Financial Institutions Regulatory Authority and the Bank of Namibia. Therefore, this study applied the ordinary least squares method.

Data Sources

The data were obtained from NAMFISA and the Bank of Namibia's quarterly reports. Thus, the types of data used were time series data from Q1 of 2010 to Q4 of 2020.

Model Construction and Definition of variables

The following variables will be used in constructing the model.

GDP=Gross domestic product

REEX=Reinsurance exemption

GWP=Gross written premiums

INFL=Inflation

εt=Error term

$GDP=\beta_0+\beta_1 GWP+\beta_2 REEX-\beta_3 INFL+\varepsilon t$

ESTIMATION, ANALYSIS, AND DISCUSSION OF RESULTS/RESULTS PRESENTATION AND DISCUSSION

OLS test/results

The study examined the relationship between insurance premiums and economic growth in Namibia using the OLS. The table below provides results pertaining to the variables, coefficients, standard errors, t and p values.

THE ORDINARY LEAST SQUARES RESULTS

Dependent Variable: GLNGDP

Method: Least Squares

Date: 07/28/22 Time: 20:40

Sample (adjusted): 2009 2020

Included observations: 12 after adjustments

Variable	Coefficient	Std. Error		t-Statistic	Prob.
C	0.675653	0.392426		1.721736	0.1359
GLNGWP	1.002889	0.321319		3.121163	0.0206
GLNREEX	0.091318	0.031012		2.944604	0.0258
LNINFL	-19.66563	9.919206		-1.982581	0.0947
R-squared	0.803011		Mean dependent var		0.331830
Adjusted R-squared	0.638854		S.D. dependent var		0.468716
S.E. of regression	0.281677		Akaike info criterion		0.610740
Sum squared resid	0.476051		Schwarz criterion		0.853193
Log likelihood	2.335560		Hannan-Quinn criter.		0.520975
F-statistic	4.891713		Durbin-Watson stat		2.360080
Prob(F-statistic)	0.039498				

Estimation of the equation

$GDP=Bo+GLNGWP+GLNREEX-LINFL+U$

$GDP=0.67+1.0GLNGWP+0.09GLNREEX-19.67LNIFL+U$

Interpretation: The results above revealed that 1.0% increase in gross written premiums lead to a 1% increase in the gross domestic product. Also a 1% increase in reinsurance exemption lead to a 0.09% increase in the gross domestic product, while 1% increase in inflation lead to a 19.7% reduction in gross domestic product.

The R-squared of 0.803 means that about 80.3% variation in the gross domestic product has been explained by gross written premiums, inflation and reinsurance exemption. A durbin watson test of 2.36 indicates a presence of negative correlation in the model.

Diagnostic test for the OLS results
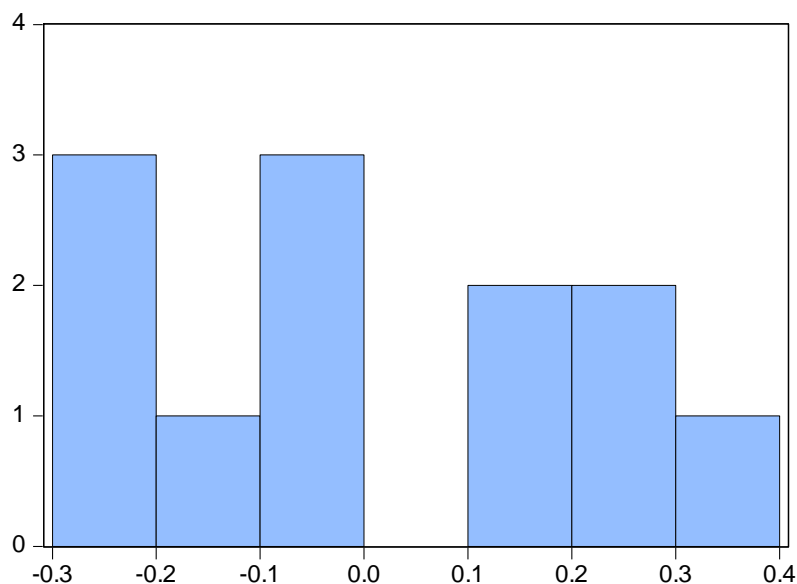
Series: Residuals	
Sample 2009 2020	
Observations 12	
Mean	-2.94e-16
Median	-0.044649
Maximum	0.334205
Minimum	-0.260837
Std. Dev.	0.208032
Skewness	0.200345
Kurtosis	1.644295
Jarque-Bera	0.999245
Probability	0.606760

Ho: Normally specified

Ha: Not normally specified

Since the P-value is greater than 5% the residuals of the model are normally distributed.

Unit root test

When the trend data need to be differentiated first or reduced to a deterministic function of time in order to keep the data stationary. When the mean and variance are constant over time and the value of the covariance between the two periods depends only on the distance or lag between the two periods rather than the actual timing of the calculated covariance.

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Series data is considered stationary (Gujarati, 2013). However, if the mean and variance of the sample change over different periods of time, this type of variable is called a transient variable. Most financial data is non-stationary, and the use of non-stationary data can lead to inaccurate or unreasonable results and poor predictions, so researchers are required to determine the validity of stability. The data were subjected to a number of tests before it was estimated. Although there are many tests on fixed devices, this study used the most common unit root test. Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) statistics were applied to test the order of constant or non-stationary variables and their integration.

The purpose of the unit root test is to examine the data generation process in detail.

$$\Delta Y_t = \delta Y_{t-1} + a_t \Rightarrow \text{Pure RW}$$
$$\Delta Y_t = \theta_0 + \delta Y_{t-1} + a_t \Rightarrow \text{RW with drift}$$
$$\Delta Y_t = \theta_0 + \theta_1 t + \delta Y_{t-1} + a_t \Rightarrow \text{adds drift and a linear time trend}$$

Unit root results

Augmented dickey fuller and Phillips Perron tests

Variable	Model	Augmented Dickey Fuller Test (ADF)		Phillips Perron Test (PP)		Decision
		Levels	First Difference	Levels	First Difference	
VARIABLES IN LOGARITHMS						
LNGDP	Constant	0.4703	0.0417**	0.3005	0.0452**	I(1)
	Trend	0.9996	0.097*	0.8643	0.0047***	
LNGWP	Constant	0.9875	0.0042***	0.2496	0.0527*	I(1)
	Trend	0.5523	0.0541*	0.1777	0.0174**	
LNREEX	Constant	0.7434	0.0074***	0.3450	0.0026***	I1)
	Trend	0.3423	0.0342**	0.456	0.0084***	
LNINFL	Constant	0.0133**		0.0133**		I(0)
	Trend	0.0530*		0.0534*		
VARIABLES IN GROWTH RATES						
GLNGDP	Constant	0.0030***		0.0030***		I(0)
	Trend	0.0399**		0.0086***		
GLNGWP	Constant	0.0154**		0.0106**		I(0)
	Trend	0.0408**		0.0472**		
GLNREEX	Constant	0.0011***		0.0001***		I(0)
	Trend	0.0083***		0.0008***		

NB: (***), (**),(*) indicate 1%, 5% and 10% level of significance, respectively.

Interpretation. The results in the table above show that the series was found to be non-stationary in level form. After differencing the data, the root of unity of 1 indicates that the series is stationary and integrated into order 1. The notion of being stationary or containing no root of one means that the mean of the variables is zero, the variance is constant, and the residuals are uncorrelated over time. According to Enders (2010), variables are only distinguished if they are not cointegrated so that they can be considered suitable for input to the VAR.

Serial correlation

Ho: There is serial correlation

Ha: There is no serial correlation

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.430029	Prob. F(2,4)	0.6774
Obs*R-squared	2.123575	Prob. Chi-Square(2)	0.3458

Since the P-value is greater than 5% the residuals of the model are not auto correlated.

Heteroskedasticity

Ho: There is hereroskedasticity

Ha: There is no heteroskestacity

Heteroskedasticity Test: ARCH			
F-statistic	1.415696	Prob. F(1,9)	0.2646
Obs*R-squared	1.495115	Prob. Chi-Square(1)	0.2214

Since the P-value is greater than 5% the residuals of the model are homoscedastic.

**Ramsey Reset**

Ramsey RESET Test

Equation: EQ02

Specification: GLNGDP C GLNGWP GLNREEX LNINFL

Omitted Variables: Squares of fitted values

	Value	Df	Probability
t-statistic	1.470734	5	0.2013
F-statistic	2.163058	(1, 5)	0.2013
Likelihood ratio	4.313989	1	0.0378

Since the P-values are greater than 5%, the model is correctly specified.

CUSUM and CUSUM of Squares tests for parameter stability
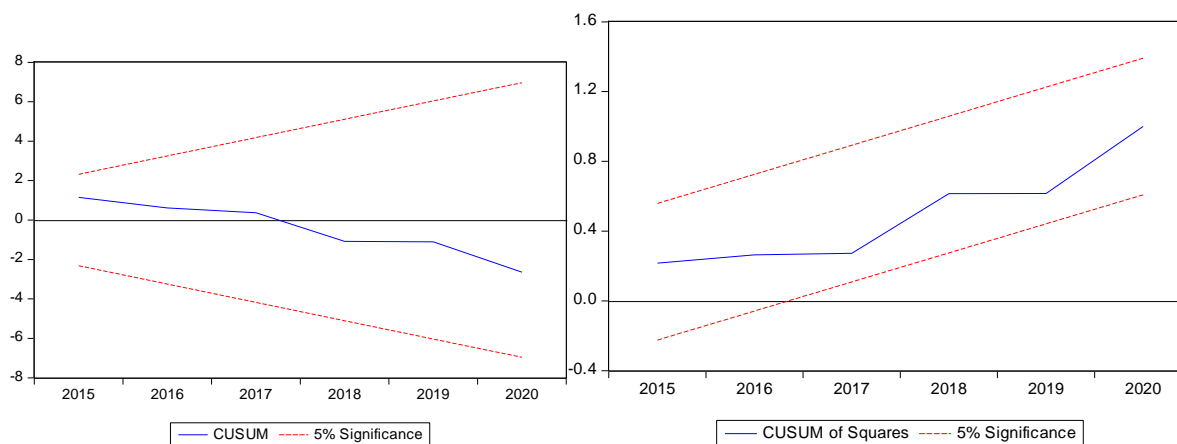
The model is stable since the P-values are greater than 5%.

Autoregressive distributed lag model and Results

Test for cointegration

ARDL Bounds Test

Date: 07/28/22   Time: 20:55

Sample: 2008 2020

Included observations: 13

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Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	1.377192	3
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.01	3.1
5%	2.45	3.63
2.5%	2.87	4.16
1%	3.42	4.84

Interpretation: Since the F-statistic is smaller than the I0 Bound we fail to reject the null hypothesis of no long relationship (no cointegration).

Autoregressive distributed lag model

ARDL Short run Model

Dependent Variable: LNGDP

Selected Model: ARDL (1, 1, 0, 1)

Date: 07/28/22   Time: 20:49

Sample: 2007 2020

Included observations: 13

Short run coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNGWP)	1.190786	0.273496	4.353941	0.0033
D(LNREEX)	0.053622	0.026268	2.041364	0.0806
D(LNINFL)	0.049678	0.055704	0.891822	0.4021
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNGWP	1.114508	0.064052	17.399945	0.0000
LNREEX	0.094576	0.038976	2.426529	0.0457
LNINFL	-0.062177	0.159394	-0.390085	0.7081

Interpretation

D(LNGWP) explains LNGDP in the short run at 1 % level of significance.

D(LNREEX) explains GDP in the short run at 10% level of significance

There is no cointegrating relationship from the cointegration test above.

4.   FINDINGS AND CONCLUSION

The study examined the relationship between non-life insurance premiums and economic growth in Namibia from Q1:2010 until Q4:2020 using the Ordinary Least Square Method. The results obtained revealed that there was a positive relationship between non-life insurance premiums and economic growth in Namibia. The result revealed also that there was a positive relationship between reinsurance exemption and economic growth in Namibia. On the contrary, a negative relationship was observed between inflation and economic growth. Lastly, the study confirmed that the reason, for premiums leaving the domestic economy in form of reinsurance exemption, was primarily due to the fact that the local insurer for Namibian does not have the capacity to underwrite insurance risks which were initially underwritten by local insurers.

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