An Evaluation of Competition in Zimbabwe's Short-Term Insurance Sector: An Application of the Panzar-Rosse Approach

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Abstract – *This paper is aimed at evaluating the nature of competition in Zimbabwe's short-term insurance sector. Panel data from 19 short-term insurers was utilized from year 2010 to 2017, the author employed the Panzar-Rosse (1987) approach as a proxy for competition. Total Revenue and Premium Revenues were used as dependent variables while size, equity ratio and underwriting risk were used as control variables. The results from the empirical investigation showed that generally short-term insurers in Zimbabwe were operating under monopolistic competition for the better part of the period under review. Thus, findings from the research point out that competition was increasing during the period under review as witnessed by declining H-statistics. The findings of the study will add literature on competition in Zimbabwe's financial sector and particularly the insurance sector. This is the first study to evaluate competition in the short-term insurance sector of Zimbabwe. To the best of the author's knowledge, this examination is the first to assess competition in Zimbabwe's short-term insurance sector.*

Keywords: Panzar-Rosse, H-Statistics, Contestability

1.0 INTRODUCTION

Financial sector competition is one of the key drivers towards the overall wellbeing of the economy. Competition in the insurance sector is an important input in efficiency and productivity of the sector which leads to enhanced economic growth. In other words, competition leads to lower costs and enhanced efficiency of financial intermediation and improved quality (Claessens, 2009). In addition, competition in the insurance sector will lead to innovation and creativity. Thus, insurers will try by all means to find ways to keep their clients as well as attracting new ones by keeping prices low.

There are various arguments for competition in the insurance sector that can be derived from the financial sector as a whole. Insurance sector as part of the financial sector can also benefit from competition in terms of stability of the market. Basing on the argument by the Allen and Gale (2004), financial sector competition leads to stability in the economy whereby small players will help in terms of absorbing some clients which leverage the sector in times of financial crises. In other words, more competitive market structures can promote stability by reducing

the number of insurers that are "too big to fail". OECD (2009) further argues that competition helps make the financial sector efficient and ensure that rescue and stimulus packages benefit final consumers.

Primarily, this study intends to determine within the Zimbabwean short-term insurance sector, the level/implication of the type of competition that exists in this industry from the period ranging 2010-2017. Additionally, the paper intends to test for the equilibrium in Zimbabwe's short-term insurance sector during this study period. To accomplish the goals of the paper, current study shall make use of the Panzar and Rosse (1987) H-*Statistics* (P-R Model). The major change in the economy as well as the sector was the adoption of the multicurrency system (Musiiwa, Chinorwadza and Dzingai, 2020). Findings from the paper will add to the policies that the sector regulators can utilize in order to enjoy full benefits of efficiency, stability as well as innovation.

The rest of the paper is organized as follows. Section 2 presents an overview of the Zimbabwean short-term insurance sector, literature review is presented in section 3; methodology (Panzar-Rosse Model) will form section 4, section 5 outlines results and analysis while section 6 concludes the study.

2.0 A SYNOPSIS OF THE ZIMBABWEAN SHORT-TERM INSURANCE SECTOR

Following almost a decade of economic decline from 2000-2008 that was witnessed by hyperinflation and deindustrialization, the government of Zimbabwe decided to abandon the domestic currency which had proved to be weaker and unstable. In 2009, the government of Zimbabwe opted to adopt the multi-currency system which comprised of United States Dollar (USD), South African Rand (ZAR) as well as the Botswana Pula (BWP) as major trading currencies. The adoption of the multi-currency system brought the economy back into positive trajectory and also stimulated investor confidence especially in the financial sector.

As indicated by the Insurance and Pensions Commission (IPEC) report of 2010, which is the administrative body for Pensions and Insurance organizations in Zimbabwe, there were 28 enlisted short-term insurers during the final quarter of 2010 with 4 of them not yet operating.

During the time period under study, there were different developments in the operations and performances of short-term insurers. By and large, the maturity of short-term insurance as estimated by the penetration ratios were generally low during the time frame under study. Penetration rate can be calculated as the ratio of premium underwritten in a particular year as a percentage of national income (GDP). A maximum of 1.75 percent was contributed by the market in 2016 when contrasted with long-term (Life) insurance which had 2.95 percent during the very year. This shows a small contribution of market to gross domestic product (GDP) and economic growth. Low penetration ratios reflect an incidence of inefficiencies in the industry. This can be shown by figure 1 below;

During the same period, short-term insurance industry's concentration ratios (CR3, CR5, CR8 and CR10) from 2010 to 2017 are further presented in Table **I**. In 2010, the industry's concentration ratios in terms of total assets stood at 41.2, 55.1, 74.72 and 81.4 percent for to 3, 5, 8 and 10 firms in that order. Meanwhile, there was a fluctuation in concentration ratios with declines in years like 2011, 2012, 2014 and 2016 for CR3 firms. On a similar note, CR5 and CR8 additionally declined in 2011, 2014 and 2016. Besides, in 2017, there was a decrease in concentration ratios for top 8 and 10 to 72.5 and 80.1 percent with regards to total assets, in that order. This decrease in concentration ratios is an indication of a rate of expanding competition in the industry. More so, Table **I** additionally shows a steady increase in the number of firms underwriting more than one business line. This reflects a high incidence of premium diversification across various business lines.

Figure 1: Penetration ratios
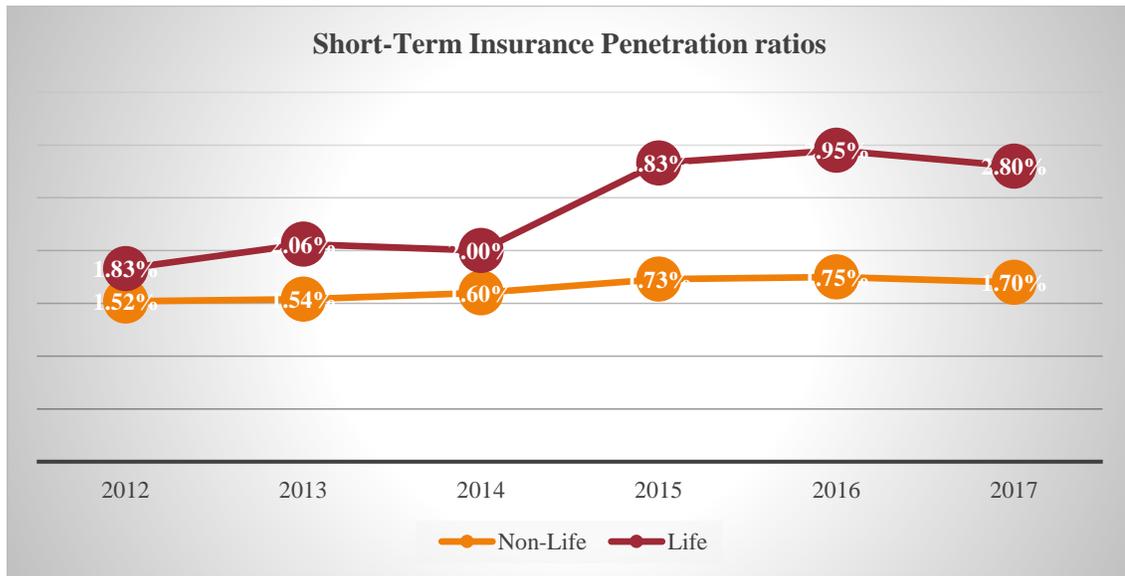
Source: Own computation

Table I: Market characteristics

	2010	2011	2012	2013	2014	2015	2016	2017
Number of primary insurers	24	26	28	29	25	24	20	20
Number of reinsurers	9	8	10	10	9	9	8	8
Single-line insurers	15	15	14	16	17	17	16	16
Multi-line insures	4	4	3	6	6	6	5	5
Concentration ratios (%)								
CR3	41.2	35.1	33.71	39.02	38.28	46.27	35.88	44.91
CR5	55.1	49	49.34	54.24	52.8	61.16	49.82	60.05
CR8	74.72	65.6	62.48	70.49	67.85	70.23	57.82	72.5
CR10	81.4	75.3	71.19	78.09	74.24	78.03	61.5	80.1

Notes: Number of single-line and multi-line insurers is authors' estimation from research data. CR3, 3-firm concentration ratio; CR5, 3-5-firm concentration ratio; CR8, 8-firm concentration ratio; CR10, 10-firm concentration ratio

Source: Own computation from IPEC data (2010-2017)

Table **II** presents the premium distribution across the thirteen lines of business from 2010 to 2015. During this period, it was seen that the consolidated market shares of overall industry of the fire and motor business lines represent around 62 percent of the gross written premiums the short-term insurance market. The motor business line is however the predominant of the two with a total of 40 percent of the industry's premiums compared with 22 percent for the fire business line in 2015. This is a clear indication that fire and motor business are the major drivers of this sector based on premiums generated by these two business lines.

Based on statistics presented in Table **III**, in 2017 the total invested assets for short-term insurers stood at $235,422,476 million, generating returns of $5,289,465 million. Over the time frame, the investment yields of the short-term market were fluctuating with extremely low yields on invested assets and this could be supported by continuous fluctuation in interest rates in this period. Extremely low yields on invested assets additionally have implications on the market for short-term insurance firms in Zimbabwe.

Table II: Premium distribution by business lines

Business lines	2010	2011	2012	2013	2014	2015
Fire	25	23.84	21.16	20.93	21.16	21.68
Motor	38	38.89	40.8	41.28	41.89	39.93
Engineering	5	5.15	5.2	4.39	4.92	4.85
Marine	3	2.88	3.09	2.41	2.86	2.73
Aviation	3	2.13	2.19	2.14	1.48	1.4
Personal Accident	8	8.86	8.92	9.15	9.42	10.28
Personal Liability	1	1.16	1.77	1.49		
Miscellaneous Accident	6	6.45	7.39	6.91	7.52	8.33
Bonds/Guarantee	3	3.76	3.36	4.78	4.66	5.33
Hire Purchase	1	1.18	1.09	1.62		
Hail	3	2.88	2.86	2.7		1.98
Health	0	0.35	0.73	0.59		
Farming	4	2.49	1.42	1.62	3.82	
Other					2.28	3.49

Source: *Own computations from IPEC data (2010-2012)*

Table III: Investment income and yields

	2010	2011	2012	2013	2014	2015	2016	2017
Investment income	3262	7129	7173	10809	10165	10986	9090	13296
Total invested assets	268708	437970	535922	679331	708046	523032	772633	914962
Yield on invested assets (%)	1.21	1.63	1.34	1.59	1.44	2.1	1.18	1.45

All figures in US$(000)

Source: Own computations from IPEC data (2010-2017)

3.0 LITERATURE REVIEW

Determinants of competition can be categorized into three approaches namely, market structure and associated indicators; contestability and regulatory indicators to gauge contestability; and formal competition measures (Claessens, 2009). On market structure and associated indicators, the Structure-Conduct-Performance is the

widely used approach in measuring competition. This approach is based on the notion that, i) *Structure* (concentration in the market) influences *Conduct* (behavior of firms for instance competitive or collusive). In this case if there is low concentration in the market, there will be more competition; ii) *Conduct* influences *Performance* (efficiency), thus competitive behavior leads to less market power and greater social efficiency (Claessens, 2009); iii) Structure therefore influences Performance.

Contestability determinants are centered to the degree of entry and exit barriers. Specifically, contestability relates to the degree of absence of entry and exit barriers (Baumol, Panzar and Willig 1982). In relation to the insurance sector, if the market is contestable, if one firm decides to charge the price that is above marginal costs, it means it will start to earn abnormal profits which will attract other firms into the market due to absence of entry and exit barriers. Abnormal profit will be exhausted as more and more firms enter the market. The incumbent insurers may respond by returning prices to levels consistent with normal profits, the new firms will exit. In this manner, even a single-firm market can show highly competitive behavior.

Finally, on formal competition measures substitutes the reaction of output to input prices. The approach is built to solve the weaknesses of the first two approaches. The major critics that can be leveled against the traditional approaches are; competition cannot be sorely measured by market structure indicators as well as the fact that traditional performance measures used in finance, such as the size of insurance company's net interest margins or profitability or transaction costs in stock markets, do not necessarily indicate the competitiveness of a financial system. Furthermore, the third approach emphasis the need for specific measures as techniques if there is the need to ascertain the degree of competition. Thus, the New Empirical Industrial Organization (NEIO) methods tried to avoid inferring competition from market shares or market structure but directly inferred firms' conduct using a number of methodologies (Abel and Le Roux, 2016). The NEIO uses indicators such as the Lerner index, the Panzar and Rosse test ("H-statistic") as well as the Boone indicator as the indicators of competition.

The Panzar-Rosse (P-R Model) is a widely used approach is assessing competition in the financial sector. The major reasons why it is a common approach is that it has sound theoretical basis as well as the ability to use data that is readily available (Bikker and Spierdijk, 2009). The approach analyses the transmission of changes in input prices to insurance firm's revenue.

A number of studies have utilized the P-R Model in assessing competition in the financial sector. Bikker and Spierdijk (2009) measured competition in the global financial sector. The researchers employed the PR-Model and findings from the research indicated that competition was different across countries with 30% of the countries having values of *H* which portray monopolist competition. Additionally, results showed 39 countries which is around one-third of the countries had *H* values, corresponding with (near-) perfect competition. Finally, in all countries except one indicated monopolistic competition. Murat, Tonkin and Jüttner (2002) evaluated competition is Australia's general insurance with the use of cross-sectional data for 1998. The researchers utilized the Panzar-Rosse approach measure competition and found out that firms in the general insurance were operating under monopolistic competition in 1998.

Utilizing a three-stage model, Alhassan and Biekpe (2016) examined the nexus between competition and efficiency in South Africa's short-term insurance sector. The research employed the P-R Model to measure competition which was then used as an explanatory variable in assessing efficiency. Panel data of 80 short-term insurers was used from 2007-2012. Findings from the study showed that firms in the market earned revenues under conditions of monopolistic competition. In addition, the researchers found a direct relationship between competition and both cost and profit efficiency which was in line with the "quiet-life" hypothesis which states that that competition improves efficiency. The authors employed the three-stage model using annual firm level data on 80 short-term insurance companies in South Africa from 2007 to 2012. The annual estimates of the P-R H-statistics indicated that suggest that firms in the market earned revenues under conditions of monopolistic

competition. In addition, the researchers found a positive effect of competition on cost and profit efficiency which was in line with the "quiet-life" hypothesis which states that that competition improves efficiency.

The PR-Model was also utilized in the banking sector and researchers like Mustafa and Toci (2017) estimated competition in the Central and Eastern Europe countries (2017) using panel data from 300 banking during the period ranging from 1999 to 2009. Findings from this research showed that banks in the CEE were operating under monopoly structure. In the same sector, Abel (2016) in his investigation on the nexus between competition and efficiency of Zimbabwean banking sector during the multicurrency era found that the banks in Zimbabwe were operating under monopolistic competition.

3.0 METHODOLOGY

In a bid to assess the market structure under which the short-term insurance companies are in Zimbabwe, the P-R Model is employed. This model is primarily used to determine the pricing behaviour of short-term insurers in Zimbabwe. reduced-form revenue equation which examines the elasticity of firm revenue to changes in input prices depending on the market structure. The H-statistics can be defined as the sum of the elasticities of revenue with respect to input prices and valid under the assumption of long-run market equilibrium (Demsetz, 1973). The coefficients from the equation will classify the short-term insurers into monopoly, monopolistic or perfect competition. This examination adopted reduced-form revenue equation by Murat, Tonkin and Jüttner (2002), Kasman and Turgutlu (2011), as well as Coccorese (2010) specified as;

$$\ln pr_i = \beta_0 + \beta_1 \ln pl_i + \beta_2 \ln pk_i + \beta_3 \ln pd_i + \beta_4 \ln ta_i + \beta_5 \ln eqr_i + \beta_6 \ln risk_i + \varepsilon_i \qquad (1)$$

$$\ln tr_i = \tau_0 + \tau_1 \ln pl_i + \tau_2 \ln pk_i + \tau_3 \ln pd_i + \tau_4 \ln ta_i + \tau_5 \ln eqr_i + \tau_6 \ln risk_i + \epsilon_i \qquad (2)$$

Where;

pr and *tr* represent insurer's revenue proxied as premium and total revenues, respectively. On input prices; *pl* represents price of labour proxied by operating expenses including commission, *pk* is price of equity capital measured as ratio of net income to equity capital is employed while *pd* is the price of debt capital measured as the proportion of venture income to total reserves (unearned premiums and outstanding claims).

In this investigation, size, equity ratio and underwriting risks are incorporated as environmental factors. The summation of β1 to β3 turns into the computed H-statistic. Thus,

$$H = \beta1 + \beta2 + \beta3 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

The standard error is utilized to test the significance of the coefficient. If the H-statistic is less than or equal to zero (H⩽ 0), it means a monopolistic structure, where firms experience a reduction in equilibrium output and revenue with increases in input prices. An H-statistic that is more than or equal to unit (H≥1), points a competitive market. This suggests that changes in production cost are proportional to changes in inputs prices. A monopolistic competitive market is captured by the H-statistics between zero and one (0<H<1).

Using annual publications by IPEC, a total of 19 out of 28 short-term insurers were used in this investigation. Firms that did not have enough data for more than three years were dropped from the sample. A total of 19 companies met this selection criterion which is about 68 percent and thus a fair representation of the whole short-term insurance sector in Zimbabwe during the period under study.

4.0 EMPIRICAL RESULTS

4.1 Evolution of competition

Competition was estimated utilizing the Panzar-Rosse model. for the model to be a valid tool for analysis, the precondition of long-run market equilibrium should be satisfied first. Different procedures can be employed in the testing for long-run market equilibrium for instance Fisher's statistics and the Wald's test. Current study used the Wald's test. The researcher firstly defined ε_1 as equilibrium statistics derived from equation (1), and ε_2 as the statistic computed from equation (2). The equilibrium statistics ε_1 and ε_2 are measured by the sum of the coefficients $(\beta_1+\beta_2+\beta_3)$ and $(\tau_0 + \tau_0 + \tau_0)$, respectively. For instance, in 2010 using both premium and total revenues, the equilibrium was computed as,

$$lnpr = 12.0104 + 0.7761058 lnpl - 0.1332232 lnpk + 0.4087717 lnpd$$
$$-0.4916056 lnrisk - 0.2039867 lneqr + 0.0583748 lnta + \varepsilon \qquad (4)$$
$$lntr = 37.94126 - 0.2672773 lnpl - 0.2954002 lnpk + 0.0279576 lnpd$$
$$-0.9434263 lnrisk + 0.1009455 lneqr + 0.2099797 lnta + \epsilon \qquad (5)$$

Finally, the researcher used the Wald's test to find out whether $\varepsilon_1 = 0$ and $\varepsilon_2 = 0$. Results from the investigation showed that ε_1 and ε_2 where different from both zero and one. Therefore, the study had no basis of rejecting the null-hypothesis and a conclusion reached is that Zimbabwean short-term insurance industry in long-run equilibrium.

Table IV: H-statistics

| Years	Premium revenue (HS-PR)			Total Revenue (HS-TR)			n
	H=stat	H=0	H=1	H-stat	H=0	H=1	
2010	1.05165	2.09	0.91	-0.5347	0.14	0.04	16
2011	0.11877	0.51	0.68	-1.0316	0.96	0.76	16
2012	0.49204	0.41	0.56	0.34211	2.96	3.85	19
2013	-0.2992	1.32	1.69	0.47589	2.76	3.93	19
2014	0.42832	2.48	3.29	-0.0035	1.47	2.18	18
2015	1.96127	10.97	7.7	0.68359	3.75	5.2	19
2016	2.12306	1.61	1.78	1.57772	1.1	1.55	17
2017	-0.2325	1.03	0.17	-0.8665	0.55	0.73	16

Notes: H=0 and H=1 test the null hypothesis that H-statistics is significant different from 0 and 1, respectively; n, number of cross-sectional observations (refer to the Table XIV for parameter estimates of the Panzar-Rosse, 1987 model estimations)

Source: Own computation

During the period under consideration the estimates of annual H-statistics over this period are presented in Table **IV**. Refer to Table **VI** for more information. Based on the outcomes presented Table **IV**, the short-term insurance sector portrayed differing structures over the period under study. Results shows that at some time different structured were shown in the same depending on whether premium revenue or total revenue is used as the depended variable. However, from 2011 to 2014 utilizing the two models, the Zimbabwean short-term insurance sector was working under monopolistic competition. The results confirm the same findings with Alhassan and Biekpe (2016) in South Africa's short-term insurance sector as well as Murat *et al* (2014) in Australia's general insurance firms. Increase in competition during the period 2011 to 2014 may be an increase in the supply of foreign and stable currencies which helped to attract investment in this sector and hence reduction in *H* values.

Table **V** gives interpretations of the H-statistics for further understanding of classifications. In addition, despite some signs of competitive structure in 2015 utilizing premium income and in 2017 utilizing the two models, by and large it very well may be noticed that the short-term insurers in Zimbabwe was working under monopolistic competition. The evolution of competition in Zimbabwean short-term insurance industry can be illustrated by the Figure **2** below;

Figure 2: Evolution of Competition
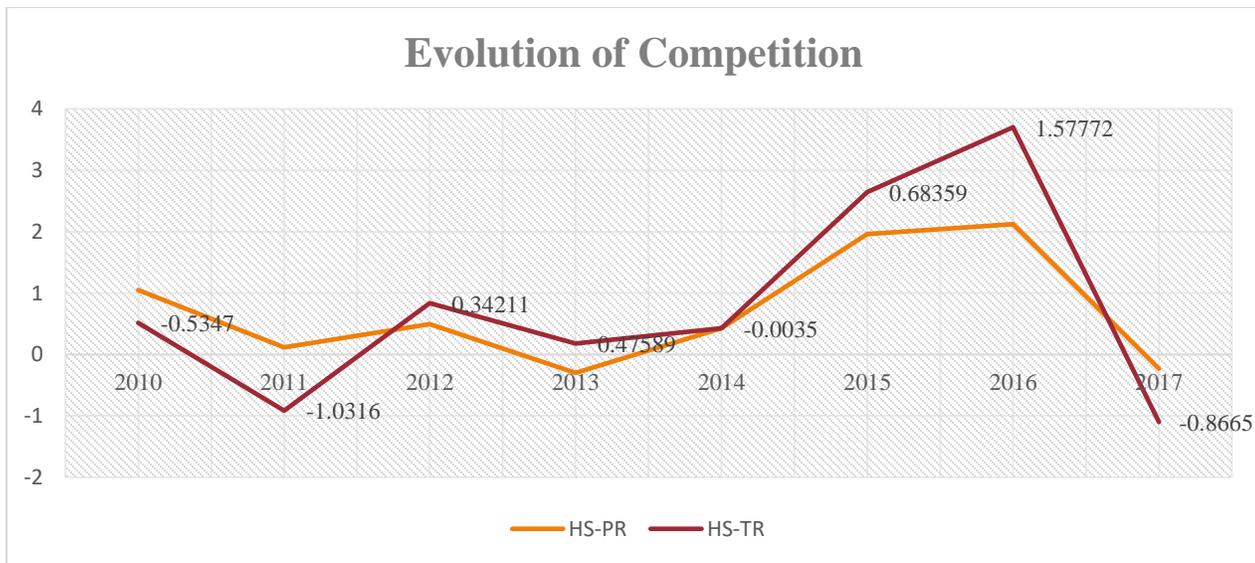
Source: Own computation

Table V: H-Statistic interpretation

H-Value	Interpretation	
H=0	Monopoly equilibrium	
	Perfect colluding Oligopoly	
	Conjectural variation shortrun oligopoly	
0<H<1	Monopolistic competition free entry equilibrium	
H=1	Perfect competition	
	Natural monopoly in a perfectly contestable market	
	Sales maximizing firms subject to break-even constraints	

Source: Rosse and Panzar (1977, 1982, 1987)

Table VI: Annual Panzar-Rosse H-statistics

Dependent variables	2010 PR Coef.	TR Coef.	2011 PR Coef.	TR Coef.	2012 PR Coef.	TR Coef.	2013 PR Coef.	TR Coef.
Constant	12.0104	37.9613	12.0104	-2.3252	29.5373	-2.3252	27.4400	12.6673
pl	0.7761	-0.2673	0.7761	-0.1930	0.2101	-0.1930	-0.1862	-0.7061
pk	-1.3322	-0.2954	-1.3332	0.5597	-0.5440	0.5597	0.0156	0.8264
pd	0.4088	0.0280	0.4088	-1.3984	0.4527	-1.3984	0.5227	0.2217
risk	-0.4916	-0.9434	-0.4916	-0.0581	-0.6076	-0.0581	-1.1949	-1.0975
eqr	0.2040	0.1009	-0.2040	0.4526	-0.6207	0.4526	0.0426	0.3796
ta	0.0584	0.2100	-0.0584	1.0537	-0.5824	1.0537	0.4731	1.3796
H-statistics	1.0517	-0.5347	0.11877	-1.0316	0.49204	0.34211	-0.2992	0.47589
H=0: F	2.09	0.14	2.09	0.96	0.51	0.96	0.41	2.96
Prob>F	0.1722	0.9304	0.1722	0.4526	0.6864	0.4526	0.7509	0.0751
H=1: F	0.91	0.04	0.91	0.79	0.68	0.79	0.56	3.85
Prob>F	0.4367	0.9650	0.4367	0.4831	0.5304	0.4831	0.5877	0.5110
F	14.60	8.8300	14.6	14.97	15.31	14.97	46.77	27.66
Prob>F	0.0004	0.0024	0.0004	0.0003	0.0003	0.0003	0.0000	0.0000
R^2	0.9068	0.8547	0.9068	0.91	0.9107	0.9089	0.96	0.9326
Adj.R^2	0.8447	0.7579	0.8447	0.85	0.8512	0.8482	0.9385	0.8988
Root MSE	1.6775	2.3935	1.6775	1.55	1.2923	1.5494	1.1574	1.5935
Observations	16	16	16	16	16	16	19	19

Dependent variables	2014 PR Coef.	TR Coef.	2015 PR Coef.	TR Coef.	2016 PR Coef.	TR Coef.	2017 PR Coef.	TR Coef.
Constant	12.8193	12.4037	-6.9833	10.8058	-14.0450	-9.0296	-7.2339	-18.0695
pl	-1.0116	-0.4480	0.2761	-0.2229	0.2982	0.1081	-0.1525	-0.0874
pk	0.7069	0.3849	0.6572	0.5899	0.2446	0.2190	-0.2852	-0.2132
pd	-0.2388	0.5960	1.0279	0.3166	1.5803	1.2506	0.2052	-0.5659
risk	0.8240	0.8656	-0.7304	-0.8081	-0.3559	-0.3711	0.3340	0.2616
eqr	0.3389	-0.5934	-0.7304	-0.8046	-0.2459	-0.8598	-0.2917	0.1504
ta	0.7252	0.9952	1.1657	0.8842	1.3192	1.2709	1.1053	1.3767
H-statistics	0.42832	-0.0035	1.96127	0.68359	2.12306	1.57772	-0.2325	-0.8665
H=0: F	2.48	1.47	10.97	3.75	1.61	1.10	1.03	0.55
Prob>F	0.1158	0.2774	0.0009	0.0414	0.2489	0.3937	0.4262	0.6623
H=1: F	3.29	2.18	7.70	5.20	1.78	1.55	0.17	0.73
Prob>F	0.0756	0.1589	0.0071	0.0237	0.2177	0.2592	0.8466	0.5074
F	29.50	33.74	53.55	26.23	17.22	17.48	8.96	15.84
Prob>F	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0022	0.0003
R^2	0.9415	0.9485	0.9640	0.9292	0.9117	0.9129	0.8567	0.9135
Adj.R^2	0.9096	0.9204	0.9460	0.8937	0.8588	0.8607	0.7611	0.8558
Root MSE	0.9096	1.2481	0.8825	1.5574	1.5647	1.7883	1.9657	1.6250
Observations	18	18	19	19	17	17	16	16

Source:
Own computation

6.0 CONCLUSION AND RECOMMENDATION

The paper was aimed at evaluating the nature of competition in Zimbabwe's short-term insurance sector during the period 2010 to 2017. In other words, the main focus of this paper was to establish the degree of competition that prevailed within this sector during the period ranging 2010-2017. Current study adds literature on competition in Zimbabwe's financial sector and in particular the insurance sector. The Panzar-Rosse (1977-1987) model was utilized to ascertain the level of competition during the period under study. Results from the ordinary list squares estimates of the PR-Model indicate that the behavior of the type of competition was not fixed over the period under study but based on overall performance of this sector the research concluded that the type of competition was monopolistic. This structure has many numerous buyers (the insured) and sellers (insurers) and thus short-term insurers can only increase their profits by product differentiation. Based on the study results, this study recommends that the government of Zimbabwe and insurance regulatory body (IPEC) should put some efforts aimed at promoting free and fair competition among the players in both short and long-term insurers. In addition, IPEC as the regulatory body should come up with a monitoring and evaluation team to make sure that competition policies are adhered to or else violators be brought before the law as competition is a basic ingredient to sector efficiency hence economic growth.

REFERENCES

Abel, S., and Le Roux, P. (2016). An evaluation of the nexus between banking competition and efficiency in Zimbabwe, *Journal for Studies in Economics and Econometrics* · December 2016.

Alhassan, A.L., and Biekpe, N. (2016). Competition and efficiency in the short-term insurance market in South Africa. *Journal of Economic Studies* · November 2016. Development Finance Centre (DEFIC), Graduate School of Business, University of Cape Town.

Allen, F., and Gale, D. (2004). Competition and Financial Stability. *Journal of Money, Credit and Banking*, No. 363, Vol. 2, pp. 453-80.

Baumol, W. J., Panzar, J. C., and Willig, R.D. (1982), "Contestable Markets and the Theory of Industry Structure." San Diego, CA: Harcourt Brace Jovanovich.

Bikker, J. A., and Spierdijk, L. (2009). Measuring and Explaining Competition in the Financial Sector. Utrecht School of Economics Tjalling C. Koopmans Research Institute. Discussion Paper Series 09-01.

Claessens, S. (2009) Competition in the financial sector: Overview of competition policies. IMF Working Paper. No. 09/45.

Coccorese, P. (2010) Competition in markets with dominant firms: A note on the evidence from the Italian banking industry, *Journal of Banking and Finance* 29, 1083–1093.

Demsetz, H. (1973). Industry structure, market rivalry, and public policy. *Journal of Law and Economics*, Vol. 16 No. 1, pp. 1-9.

Insurance and Pensions Commission Annual report 2010.

Insurance and Pensions Commission Annual report 2011.

Insurance and Pensions Commission Annual report 2012.

Insurance and Pensions Commission Annual report 2013.

Insurance and Pensions Commission Annual report 2014.

Insurance and Pensions Commission Annual report 2015.

Insurance and Pensions Commission Annual report 2016.

Insurance and Pensions Commission Annual report 2017.

Kasman, A., and Turgutlu, E. (2011). Performance of European insurance firms in the single insurance market. International Review of Applied Economics, Vol. 25 No. 3, pp. 363-378.

Murat, G., Tonkin, R. S., and Jüttner, J. D. (2002). Competition in the General Insurance Industry. Macquarie University, Sydney. 14/12/02C:\Papers\InsurSymposium.doc

Musiiwa, R., Chinorwadza, T., and Dzingai, M. (2020). Efficiency in the Short-Term Insurance Industry in Zimbabwe: An application of the Stochastic Frontier Approach. *Diverse Journal of Multidisciplinary Research (DJMR) Volume 2*, Issue 6, August 2020.

Mustafa, A., and Toçi, V. (2017). Estimation of the banking sector competition in the CEE countries: The Panzar-Rosse approach. *Zb. rad. Ekon. fak. Rij. • 2017 • vol. 35 • no. 2 • 459-485*

OECD. (2009). Competition and Financial Markets.

Panzar, J. C., and Rosse, J. N. (1987). Testing for "Monopoly" equilibrium. *The Journal of Industrial Economics*, 35(4), pp. 443-456.