Dynamics of the Insurance Paradigm Analysis in Pakistan: An Evidence of Leading Islamic, Public and Private Insurers

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| ARTICLE INFO	ABSTRACT
	This paper explores the dynamics of the general insurance paradigm throughout six different companies, NICL (National Insurance Company), EFU (Easter Federal Union), Adamjee, Jubilee General Insurance, Salaam Takaful Limited, and Pak-Qatar Takaful, in the developing economy of Pakistan from 2012 to 2021. To examine collective long-run outcomes, Pedroni and Kao tests were taken to measure the impact of public and private corporate entities as well as the cause-and-effect relation of each regressor on the dependent variable of solvency ratio, Granger causality and the Pooled Mean Group-Autoregressive Distributed Lag (PMG-ARDL) model have been used. According to the estimated outcomes, it has been deliberately observed that except for the claim ratio, all other explanatory variables positively influence the solvency ratio. In future, this paper will be help out researcher, practitioners, and public sector corporate consumer demand and service quality issues under the general insurance paradigm conventional and Islamic insurance as well.

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1.　　Introduction

By definition, an insurance paradigm is an agreement by which a business firm or the state undertakes to offer a guarantee of reimbursement for a particular loss, damage, or death in return for compensation for a specified premium. The insurance paradigm is normally classified into two segments, i.e., life and nonlife. Insurance agreements that do not fall under the domain of life insurance are called non-life or general insurance and refer to fire property, marine, and miscellaneous insurance coverage. The term "miscellaneous insurance" includes health, engineering, travel, motor vehicle insurance, commercial and business insurance, etc. (PACRA, 2022). Islamic insurance, which is the most proper substitute for conventional, is stand on shāriah laws and covers life, health, and all curriculums of general insurance needs, any claims made by participants are paid out through the fund. There are several models like Mudhārbah, Wakālah, and combination of both Wakālah and Mudhārbah model are in practices around the globe.

In Pakistan, the general insurance paradigm has changed dramatically during the last two decades. The economic picture that emerged as a result of globalization and privatization has presented the new challenges to the insurance industry (Hauke, Volk, Habib, & Mühlhäuser, 2012). Customers are well aware of their rights and remedies, the availability of numerous grievance resolution channels, and the progressive decontrol and de-tariffication of insurance product pricing. After the brief introduction, it has been logically observed that a profuse amount of literature has been found globally that describes the general insurance paradigm in different ways for divergent states in different spans of time. Bansal and Singh (2021) quantified the insurance businesses planned on the stock exchange in six 'Gulf Cooperation Council (GCC) states (Maulana & Mulyana, 2020) investigated and established a link between economic insolvency and general insurers' productivity in the insurance sector of Bangladesh.

Figure 1
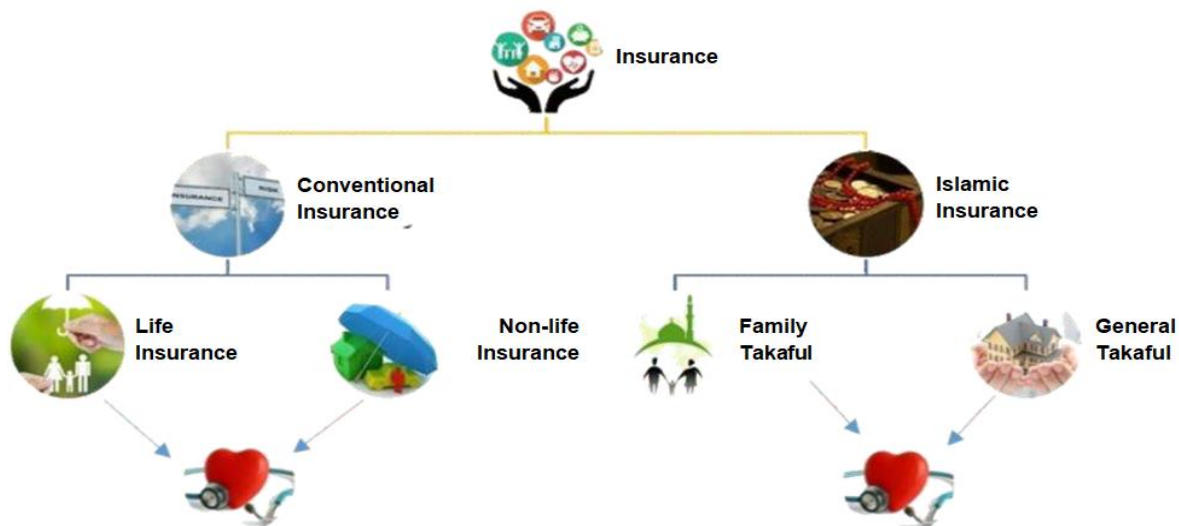
In another study, Almuhim (2019) designed the research on twenty-six general insurance companies and seven Islamic insurance companies for the period of 2014-2017 through a Two-Stage Data Envelopment Analysis modeling. Empirics demarcated so as to DEA achievements of the two sorts of insurance (public and private entities) had declined on average, however, Islamic insurance companies executed better than other insurers and its DEA got boosted during the study period. Alali, Boyabes, and Alfailakawi (2018) investigated internal factors that have an important impact on the productivity of general insurers listed on the Kuwait stock exchange.

Tahira and Arshad (2014) evaluated the performance of traditional insurance businesses as well as Islamic businesses in Pakistan and found that Islamic insurers have more liquidity than traditional insurers. Though, in the context of Pakistan, especially in six key companies' cases like NICL (National Insurance Company), EFU (Easter Federal Union), Adamjee General Insurance Company, Jubilee General Insurance, Salam Takaful Limited, and Pak-Qatar Takaful, a single study does not find yet specifically that describes the dynamical insurance paradigm by using second generation analytical techniques and causality approach. Thus, the newness of the recent research is that it has made a remarkable attempt to bridge the above-stated gap by responding to the following possible questions and objectives of the study.

Q_1:   Do the long-run linkages amid variables of study exist across all six insurers in the General insurance industry of Pakistan (GiiP)?

Q_2:   How does each entity regressor affect dependent variables in the long run across all six insurers in the General insurance industry of Pakistan (GiiP)?

Q_3:   What type of causality is running between regressors and dependent variables in the area under study?

The objectives of the study are;

- To examine the collective long-run relationship amongst variables throughout six different insurance companies in the General insurance industry of Pakistan.
- To investigate each entity regressor (market share, gross written premium, investment income, claim ratio, and underwriting profitability) effectiveness on the dependent variable (solvency ratio) across six different insurance companies in the general insurance industry of Pakistan (GiiP).
- To examine the direction of causality among regressors and dependent variables along with drawing an Arbitrage Pricing Theory (APT) policy that helps to expand the General insurance paradigm in Pakistan.

2.   Methodology
The penetrating concern of the current study is to explore the dynamic of the general insurance paradigm in the developing economy of Pakistan by using panel data of six dissimilar insurance companies NICL, EFU, Adamjee, Jubilee, Salaam Takaful, and Pak-Qatar Takaful are taken under consideration since 2012 to 2021. To explore empirical outcomes, basically, six variables are taken under consideration Solvency Ratio (SR), Market Share (MS), Gross Written Premium (GWP), Investment Income (IY), Claim Ratio (CR), and Underwriting Profitability (UWP). The data on these variables have been obtained from numerous sources such as the Pakistan Credit-Rating Agency, the State Bank of Pakistan, the Securities and Exchange Commission of Pakistan, the Insurance Association of Pakistan (IAP), Sigma reports, (SECP), and insurers of General insurance industry of Pakistan (GiiP). Generally, the model of the study is expressed as

$$Ln\,SR = \mathfrak{f}\,(Ln\,MS, Ln\,GWP, Ln\,IY, Ln\,CR, Ln\,UPW) \qquad (1)$$

In equation-1, Ln SR is the dependent variable of the 'Solvency Ratio' which is defining 'the aptitude of a business company to reimburse long-term compulsions including clarification payments and its boons (Budhathoki, 2018). Similarly, the regressor Ln MS (market share) is defined as "the proportion between total company trade over the period and whole industry trade over the period"(Bhattacharya, Morgan, & Rego, 2022). LN GWP (Gross Written Premium) is explained as the total direct and presumed premium pen-down by an insurer before the subtraction for reinsurance and ceding directives (Mužáková, 2011; Negash, Venugopal, & Asmare, 2018). Ln IY (investment income) is broadly defined as the amount of money that an insurance company earned from the investment activities rather than the other operations (Alokla, Daynes, Pagas, & Tzouvanas, 2022; Salleh, Chowdhury, Cahyono, & Widiastuti, 2022). Ln CR (claim-ratio) defined as the expenses incurred in association with the premium earned" (Sanou & Soumaré, 2021). Lastly, Ln UWP (Underwriting profitability) is expressed as the difference between insurance payouts and premiums (Born, Eastman, & Sirmans, 2023).

Figure 2: A Graphical View of overall Model Specification for the Existing Study
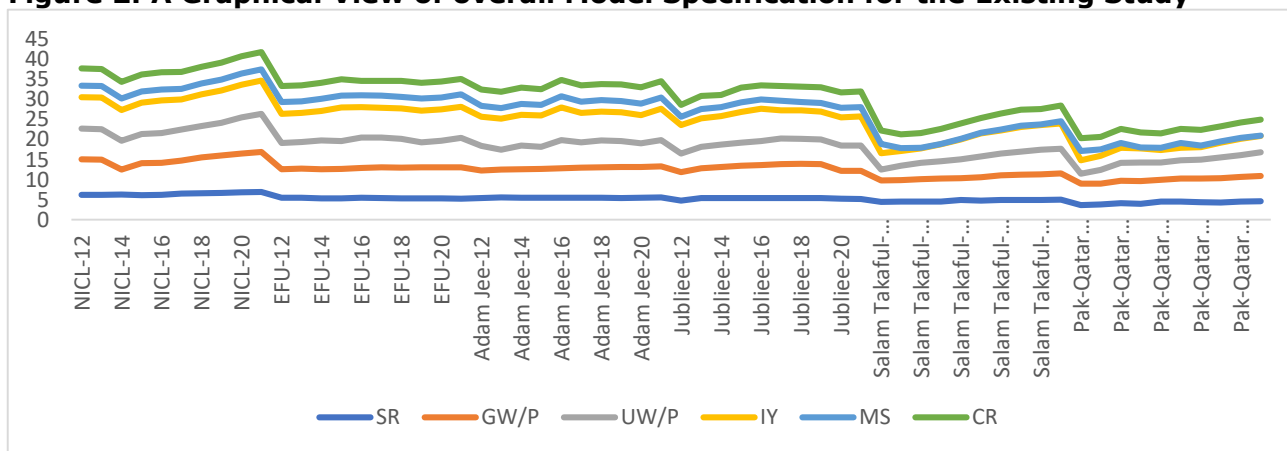
To study the effectiveness of Market Share (MS), Gross Written Premium (GWP), Investment Income (IY), Claim Ratio (CR), and Underwriting Profitability (UWP) on Solvency Ratio (SR) across six insurance companies in a longer and shorter span of time in Pakistan following linear equation has been formulated by underpinning the study

$$Ln\,SR = \Pi\_0 + \sum\_(j = 1)^t \llbracket \Pi\_a\,LnW\_at \rrbracket + \omega\_t \qquad (2)$$

In the above equation (2) Ln-SR is the representative of the Solvency Ratio in logarithmic form, Π_0 is the drift of the model which describes the expected rate of 'dependent variable' when the entire regressor is zero. Π_a is representative of the gradient coefficient of all regressors taken in the study (Robinson et al.,2015), it explains the percent variation in the 'dependent variable' due to unit transform in the explanatory variables. LnW$_{at}$ is the representative of all the regressors (MS, GWP, IY, CR, and UWP) in the logarithm form. Lastly, ω_t is the residual measure of the model which predicts the answer of those variables so as to not be incorporated in the model but has substantial effects on the selected model.

2.1 Cross-Sectional Dependency Extensive Description

Breusch and Pagan (1980) In any panel data study, it is quite an important step to predict the cross 'sectional dependency' amid variables before the calculation of the co-integration. To get the better of preceding inadequacy and predict cross-sectional reliance, L.M has been utilized. Statistically shape of the LM test is as follows:

$$CSD_{LM} = \Gamma_i \sum_{j-1}^{a-1} \sum_{i=j+1}^{a} \vartheta_{ij}^2$$

Generally, to present outcomes of CSD test, LM test pursue χ^2 distribution with scale of freedom n(n1)/2 under null-hypothesis elaborates that there is no cross sectional reliance amid variables

2.2 Detail View of Heterogeneity Prediction

The Current study also follows previous literature and used Pesaran-Yamagata (2008) method to calculate the heterogeneity of the data. Statistically, the method of heterogeneity is symbolized as

$$P_{t-}Y_t = \sqrt{X} \left(\frac{X^{-1}\overline{Z-\rho}}{\sqrt{2\rho}} \right) \tag{3}$$

In an equation (3) P_t-Y_t are the key representative of the Pesaran-Yamagata test while 'X' is the cross-sectional demonstrative and finally 'ρ' is the total number of coefficients and 'Z' is the Swamy model.

2.3 Predicating the Stationary Condition of the Data

(Westerlund, Hosseinkouchack, & Solberger, 2016; Yunzhao, 2022) combination of well reputed globally conceded methods like CADF and CIPS are used to envisage stationary condition of the data. Generally, CADF and CIPS is expressed as

$$\Delta Ln\, W_t = \Gamma_0 + \Gamma_i LnW_{i\,t-1} + \sigma_i Ln\overline{W}_{t-1} + \sigma_i Ln\Delta\overline{W}_t + \mu_{it} \tag{4}$$

Here in equation (4) first difference is represent through the 'Δ' symbol while $\overline{W}_t = \frac{1}{N}\sum_{k=1}^{p}\overline{W_t}$; $\Delta\overline{W}_t = \frac{1}{N}\sum_{k=1}^{p}\overline{\Delta W_{it}}$ (Jamil et al., 2022). Like CADF, CIPS is empirically *expressed as*

$$CIPS = \frac{1}{N}\sum_{k=1}^{n} CADF_t \tag{5}$$

In equation 5 CADF is the cross-sectional ADF test while 'N' representative of sum figures of cross sections taken under consideration in research.

2.4 Specification of the Symmetrical Model to Explore Long run Results

According to (Pesaran & Yamagata, 2008) the study, for panel data set ARDL model is applied in three different ways: PMG Auto-regressive Distributed Lag model. However, to conclude which model is appropriate and theoretically logical for the present study, a globally recognized Hausman test has been used. Generally, the ARDL model for the current study is expressed as;

$$\Delta Ln\, SR_{ij} = \pi_0 + \sum_{B=1}^{z}\pi_1 Ln\, SR_{i-j} + \sum_{B=0}^{z}\pi_2 Ln\, MS_{i-j} + \sum_{B=0}^{z}\pi_3 Ln\, GPW_{i-j} +$$
$$\sum_{B=0}^{z}\pi_4 Ln\, INV_{i-j} + \sum_{B=0}^{z}\pi_5 Ln\, UMP_{i-j} + \sum_{B=0}^{z}\pi_6\, Ln\, CR_{i-j} + \mu_t \tag{6}$$

In the above equation, LN SR is the dependent variable of the solvency ratio in the natural logarithm form. Whereas *Ln* MS, *Ln* GWP, *Ln* IY, *Ln* UWP, and *Ln* CR are the regressors in natural logarithm form and known as market share, gross premium written, investment income, underwriting profitability, and Claim ratio. Similarly, π_0 is the intercept of the model which defines the anticipated value dependent variable when all regressors are zero while π_1 to π_6 are different considerations of variables in long-run, while Z reveals the lag values of the 'dependent variable'

and B shows the lag of each and every regressor. Lastly, μ_t is a residual expression that captures the cause of those variables that are not part of the model except to affect it from the outside (Adams, Andersson, Lindmark, & Veprauskaite, 2012).

$$\Delta Ln \, SR_{ij} = \Pi_0 + \sum_{B=1}^{z} \Pi_1 Ln\Delta SR_{i-j} + \sum_{j=1}^{z} \Pi_2 Ln \, \Delta MS_{i-j} + \sum_{K=1}^{z} \Pi_3 Ln \, \Delta GPW_{i-j} +$$
$$\sum_{L=1}^{z} \Pi_4 Ln \, \Delta INV_{i-j} + \sum_{m=1}^{z} \Pi_5 Ln\Delta UMP_{i-j} + \sum_{n=1}^{z} \Pi_6 Ln \, \Delta CR_{i-j} + \Pi_7 ECM_{t-1} + \mu_t \qquad (7)$$

Similar to equation (6), in current equation (7) the parameters along with regressors in the short run. In equation (7), here Π_0 is the short run drift of the model while Π_1 to Π_6 are key parameters for regressors, Π_7 is the error correction term parameter. Lastly, here also μ_t is the residual term which captures the effect of those variables that are not part of the model but affect it from the outside (Sherris, 2006).

2.5 Robustness of the Long Run Coefficients
Generally, robust model is expressed as

$$Ln \, SR_{ij} = \alpha_1 + \alpha_2 Ln \, MS_{ij} + \alpha_3 Ln \, GPW_{ij} + \alpha_4 \, Ln \, INV_{ij} + \alpha_5 Ln \, UMP_{ij} + \alpha_6 Ln \, CR_{ij} +$$
$$\alpha_7 Dummy + \varepsilon_t \qquad (8)$$

Similar to the above ARDL equation description here in equation (8) α_0 is the interrupt of the model, as α_1 to α_6 are the long-run slope coefficient that measures confirm the ARDL long run coefficient accuracy, α_7 is the coefficient of dummy variable which explore the role three different insurance companies (Public, Private and Islamic insurance) toward solvency ratio development in General insurance paradigm in Pakistan. Finally, here also ε_t is the residual part of the model (Ferrier, Smith, & Grimm, 1999).

3. Results and Discussions
First, the results of summary statistics of the variables have been presented in Table 1 which consists of standard deviation and means, minimum and maximum, kurtosis, and skewness values for the panel of six different insurance companies. To conclude, skewness and kurtosis highlight whether the data is usually distributed or not. As per the above discussion, the analytical measures of entire the variables were found relatively cogent for the reason that data of all key variables is found to be generally distributed with zero (0) means and 'constant variation', because at every step the probability of Jarque Bera test is larger than .05 which acknowledge that null-hypothesis of data is usually distributed (Amin et al., 2020). Further, these empirics are also validated with a closer to zero (0) skewness measure and closer to value three kurtosis measure (Pan et al., 2022).

Table 1: Summary Statistics of the Variables

Summary	Ln SR	Ln UWP	Ln MS	Ln IY	Ln GWP	Ln CR
Mean	5.272	6.035	2.009	6.478	7.139	3.845
Median	5.384	6.174	2.518	7.209	7.257	3.931
Minimum	3.688	2.484	0.105	3.091	5.170	2.995
Maximum	6.933	9.474	3.091	8.318	9.954	4.317
Std. Dev.	0.723	1.409	1.071	1.716	1.170	0.318
Skewness	0.193	0.239	0.453	0.251	0.170	-0.369
Kurtosis	2.974	3.160	2.853	3.190	2.396	3.30
Jarque-Bera	0.373	0.637	1.357	0.660	1.201	3.800
Prob.	0.829	0.727	0.515	0.710	0.548	0.202
Cross-sections	6	6	6	6	6	6
Observations	60	60	60	60	60	60

According to the results of Table 2, it has been widely noted that except claim ratio, all the regressors and solvency ratio are strongly correlated with a positive relationship. It has been evidently noted that all the regressors are also strongly linked with each other but the strength of the relationship is less than the benchmark of 0.8 which means the data does not contain any problem of Multicollinearity (Wang, Zaman, Zaman, & Rasool, 2021). Results of Table 3 extensively reveal that all the variables either dependent or regressors are incorporated at the amalgamation of level I(0) and first difference I(1). Simply means that Ln UWP and Ln GWP are stationary at point I (0) as contrarily Ln-SR, Ln-MS, Ln-IY, and Ln-CR are stationary at first

variation I (1) except no variable is found stationary at the second difference I (2). In the view of theory (Amin et al., 2020; Saboor, Sadiq, Khan, & Hameed, 2017).

Table 2: Correlation Matrix to Explore Strength of Correlation

Variables	Ln SR	Ln UWP	Ln MS	Ln IY	Ln GWP	Ln CR
Ln SR	1.00					
Ln UPW	0.775	1.00				
Ln MS	0.654	0.572	1.00			
Ln IY	0.733	0.785	0.791	1.00		
Ln GPW	0.766	0.742	0.685	0.724	1.00	
Ln CR	-0.680	0.722	0.309	0.504	0.512	1.00

Table 3: Unit-Root Test: Predict Stationary Condition of Data

Variables	CIPS				CADF				Decision
	(At Level)		At.1st Difference		(At Level)		At.1st Difference		
	C.	C&T.	C.	C&T.	C.	C&T.	C.	C&T.	
Ln SR	2.04	-1.47	-2.39[b]	-3.01[b]	2.48	-1.87	-4.50[b]	-2.12[b]	I-(1)
Ln UPW	-0.72	-13.84[a]	-13.07[a]	-2.09[a]	-2.73	-6.21[b]	-4.28[b]	-2.45[b]	I-(0)
Ln MS	-0.86	-2.49	-2.63[b]	-2.52[b]	-1.20	-1.51	-10.39[a]	-3.39[b]	I-(1)
Ln IY	-0.72	-0.85	-3.46[a]	-4.95[a]	-1.86	-1.02	-3.49[a]	-5.71[a]	I-(1)
Ln GPW	-4.06[a]	-3.74[a]	-2.68[b]	-3.28[a]	-4.56[b]	-8.27[a]	-7.46[a]	-9.20[a]	I-(0)
Ln CR	-1.45	-1.04	-3.93[a]	-4.86[a]	-1.49	-1.41	-3.99[a]	-5.44[a]	I-(1)

a= 1%, b=5% and c=10% significance level

In this phase of the study when it is really confirmed that data has combined stationary condition with an incidence of 'cross-sectional dependence' without heterogeneity then 2nd generation panel-cointegration tests are applied to confirm the long-run correlation amid variables. Calculated outcomes in the Pedroni test in Table 4 highlighted that maximum panel and grouped measures of v.statistics, PP statistics, and ADF., statistics reject the null hypothesis of no co-integration in data in favor of alternative hypothesis at 1percent, 5percent and 10percent points of importance that there exists significant co-integration amid the variables of study such as Ln-SR, Ln- UWP, Ln-MS, Ln-IY and Ln-GWP. In the end, the authenticity of the long-run relationship and the reliability of the above test is also measured through the Kao co-integration test. Empirical estimates of the Kao test also reject the null hypothesis at a 5 percent importance level and reveal that the above calculated long-run relationship under both Pedroni measures is accurate, appropriate, and reliable (Shah, Khan, Saboor, & Iftikhar-ul-Husnain, 2022).

Table 4: Co-Integration Results under Pedroni and Kao Methods

AR Common Coefficients under Alternative Hypothesis (Within the Dimension)				
Tests	Statistics	Prob.	Weight Statistics	Prob.
Panel v-Statistics	-1.195	0.8831	-2.205	0.986
Panel rho Statistics	-2.600	0.9953	2.994	0.998
Panel PP-Statistics	-3.315[a]	0.0005	-4.174[a]	0.000
Panel ADF-Statistics	-3.116[a]	0.0009	-3.757[a]	0.0001
AR Common Coefficients under Alternative Hypothesis (Within the Dimension)				
Group- rho-Statistics	3.860	0.999		
Group PP-Statistics	-5.151[a]	0.0000		
Group ADF-Statistics	-3.868[a]	0.0001		
Kao Co-integration Statistics under ADF: -4.60[a] (0.000)				

a= 1%, b=5% and c=10% significance level

After significantly finding the long-run relationship between variables through Kao and Pedroni test. In the next step, the entity impact of each regressor in the long and short run has been estimated on the solvency ratio of six different companies NICL, EFU, Adamjee, Jubilee, Salam Takaful, and Pak-Qatar Takaful for the period of 2012 to 2021. To explore outcomes a couple of models Mean Group ARDL and PMG ARDL are taken under consideration. However, to envisage which model is appropriate and presents well-recognized outcomes Hausman test is also incorporated into the existing study. An empirical result of the Hausman test is 7.30 (0.1250) which accepts the null hypothesis widely and approve that for the present study PMG (pooled mean group) ARDL model is appropriate to explore each regressor impact on solvency ratio in a longer and shorter span of time.

3.1 Underwriting Profitability

Initially, the long-run measurement of this study reveals that a 1 percent enhancement in underwriting profitability significantly increases the solvency ratio by 0.284 percent. The estimates are in line with prior literature of (Hailegebreal, 2016). The logical reason is that when underwriting profit increases, the progress, performance, and efficiency of the insurance companies also raise and it ultimately enabling to provide more quality services to their policyholders, which leads to an uplift in the solvency ratio of the insurance companies in a longer span of time.

3.2 Investment Income

An empirical estimate of investment income deliberately highlights that a 1 percent increase in investment income leads to a boost in the solvency ratio by 1.341 percent significantly. The calculated measure is quite logical and also consistent with the earlier view (Baraja & Yosya, 2019; Rauch & Wende, 2015). The logic behind this increase in solvency ratio due to investment income is the trust of the common folk because when corporate sectors entities earn more profit and feel that their risk is covered and assets are quite secure against premiums in the insurance companies, they invest more which eventually leads to enhance the solvency ratio of the companies taken under consideration in the long run.

3.3 Gross Written Premium

The pragmatic impact of the gross written premium evaluates that a 1 percent enhancement in GPW direct to 0.495 percent adds to the solvency ratio substantially. These estimates are consistence with prior literature of (Podoabă, 2015; Zariņa, Voronova, & Pettere, 2018). The basic reason behind this increase is that increases in gross written premium further increase the return of the insurance companies at a wider level such increase in return straighten the path for maximum insurance companies to provide more facilities to their policyholder in terms of 'service quality' and corporate consumer satisfaction level which leads to increase the solvency ratio of the insurance companies.

3.4 Claim Ratio

Lastly, calculated outcomes of claim ratio deliberately highlighted that a 1 percent increase in claim ratio significantly reduces the solvency ratio of the insurance companies by 0.925 percent respectively. These measures are quite rational and widely consistent with the prior studies (Sherris, 2006). The logical reason behind the negative association is that when the claim ratio increases it affects the insurance company in twofold; first, it reduces the trust of the policyholders in insurers while secondly more than ever in empirical context with an increase in claim percentage, companies' expenses which leads to decline the insurance companies investment, profit and reverse. Precise reduction in reserves of the insurance company causes a substantial decline in the solvency ratio.

The initial outcome of the public sector company is NICL in Table 5 highlight that 1 percent increase in Market Share (MS), Investment Income (IY), and Underwriting Profitability whereas IY leads to 0.021percent, 0.188percent, 0.07percent, and 0.104percent raise in Solvency Ratio of the company under discussion. Contrarily, a 1 percent increases in Claim Ratio declines the solvency Ratio by 0.370 percent. However, the calculations of the dummy variable indicate that when the working of private and Takaful insurance companies is zero then the average annual reserve earning after all the basic payments like taxes, claims, an employed person pay, etc. is 78 billion rupees respectively. Further, the overall model is highly significant and well-fitted because R-squared, and F-Statistics values along with all the diagnostic measures are quite valid and also residual is normally distributed.

Secondly, the outcomes of private companies that are EFU, Adamjee, and Jubilee General Insurance in Table 5, highlight that a 1 percent increase in MS, IY, UWP, and IY leads to 0.103percent, 0.233percent, 0.099percent, and 0.173percent increase in solvency ratio of the companies under discussion. Contrarily, a 1 percent increase in CR declines the solvency ratio by 0.173 percent. However, the calculations of the dummy variable indicate that when the working of public and Takaful insurance companies is zero then the average annual reserve earning after all the basic payments like taxes, claims, an employed person pay, etc. is 56 billion rupees respectively. Further, the overall model is highly significant and well-fitted because R-squared, and F-Statistics values along with all the diagnostic measures are quite valid and also residual is normally distributed.

Lastly, the outcomes of Islamic insurance companies that are Salaam Takaful Limited and Pak-Qatar Takaful in Table 5 highlight that a 1percent increase in MS, IY, UWP, and IY leads to 0.047percent, 0.110percent, 0.218percent, and 0.198percent increase in solvency ratio of the companies under discussion. Contrarily, 1 percent raise in CR declines the solvency ratio by 0.449 percent. However, the calculations of the dummy variable indicate that when the working of public and Takaful insurance companies is zero then the average annual reserve earning after all the basic payments like taxes, claims, an employed person pay, etc. is 14.40 billion rupees respectively.

Table 5: Pooled Ordinary Least Outcomes for Different Companies

Variables	Public		Private		Takaful	
	Coefficient.	T-Stat.	Coefficient.	T-Stat.	Coefficient.	T-Stat.
Ln-MS	0.021^b	2.53	0.103^b	2.138	0.047^b	2.55
Ln-IY	0.188^a	5.27	0.233^a	5.136	0.110^c	1.67
Ln-UPW	0.07^c	1.93	0.099^b	2.137	0.218^a	3.80
Ln-GPW	0.104^b	2.19	0.173^a	3.186	0.198^b	2.59
Ln-CR	-0.370^b	2.01	-0.342^c	1.78	-0.449^b	2.49
Dummy	0.783^a	8.73	0.560^a	6.44	0.144^b	2.46
C	2.75^a	13.67	1.996^a	9.49	1.68^b	2.53
R^2	0.934	------	0.91	------	0.84	-----
F-Test	154.06	(0.000)	109.98	(0.000)	57.79	(0.000)
JB-Test	2.20	(0.332)	0.863	(0.649)	2.99	(0.223)
CSD	0.385	(0.6996)	0.245	(0.806)	1.492	(0.1355)
Heteroskedasticity	9.356	(0.1580)	8.87	(0.1810)	9.785	(0.1536)

a= 1%, b=5% and c=10% significance level; CSD= Cross-sectional Dependence; JB=Jarque Bera Test; Figure in the parenthesis is estimated probabilities

Moreover, the overall model is highly significant and well-fitted because R-squared, and F-Statistics values along with all the diagnostic measures are quite valid and also residual is normally distributed.

4. Conclusions

The State insurance companies provide a wide range of products to corporate sector entities with the purpose of protecting them from perils and hazards and securing their pecuniary risk. The financial performance of the leading three private companies has been observed to be better in some cases than that of the public sector company during the period 2012–2019 and this could be possibly due to many strategies adopted by the private companies like attracting customers by offering new products, Takaful windows, insured mega projects of public sector, and some other factors as well (IAP Report, 2020). While in terms of solvency ratio and grievance claim settlement, the public sector has performed better than private companies during the period 2012–2019 (SECP, 2021). However, National Insurance Company Limited after the year 2020 has emerged as one of the top performers in Pakistan's insurance industry and stands on strong financial footing alongside one of the highest taxpayers contributing to the national exchequer. NICL achieved its targets of Rs. 11 billion gross premium in 2019, Rs. 15 billion in 2020, and Rs. 21 billion in 2021, and announced a remarkable record underwritten premium of Rs. 25 billion in 2022. The equity of NICL shareholders exceeded 32 billion, which is significant in enhancing retained capacity and earning more profit through investment (Business Time 2023). Conversely, Islamic insurance operators could not develop themselves too much through the long period of the last two decades (PACRA, 2022).

4.1 Policy Recommendations

On account of the findings and analysis, the following implications are reproducing for the improvement and development of the general insurance paradigm of the Pakistan sector wise. Private insurers must maintain the required level of technical reserves in order to respond to unexpected claims. To report profitable results, the private insurance sector should be permitted to raise funds from the stock market. According to the study, the average net preservation ratio of private sector enterprises during the last ten years was 56.23percent, which is lower than the 75.72percent of the public sector As it indicates the companies' ability to carry risks," private sector enterprises must bring in extra capital to boost net preservation, allowing them to expand risk-bearing capacity and so grow business and investment profits. Proper risk management

practices should be made necessary under the banking risk-management system so that insured's' hard-earned money can be saved and protected (PACRA, 2022).

Nowadays, the Islamic insurance business in Pakistan benefits from infrastructure that supports the conventional insurance business, such as legal and supervisory structures, equity institutions, investment, and so on. There is a need to strengthen supporting institutions to specifically meet the requirements of the Takāful industry e.g., separate legislation, developing Sharī'ah governance and supervisory frameworks as operating in other Islamic countries i.e., Malaysia, Turkey, UAE, and Saudi Arabia. In this context, this study presents two policy suggestions (i) issue license of Takaful windows to all general insurers by the regulator, (ii) provide favorable tax incentives to Takāful general operators. This will lead to further development in the Islamic insurance industry in Pakistan.

In the direction to observe the financial performance of public sector companies, it has been revealed that from 2001 to 2020 market share has remained at 14 percent (SECP, 2021), regardless of having monopoly power of Sections 156 and 166 of the Insurance Ordinance-2000. This reflects a decline in the overall structure and standards of public sector Companies when compared to private sector companies. It suggests that in order to remodel the entire organization, dynamism must be injected.

In compliance with the general insurance paradigm analysis in Pakistan, the researcher recommends that state-owned companies can hold the highest position and boost its market share up to 30 percent within the limited course of time (2023- 2025) if the aforementioned strategies carried out genuinely:

- In case of absence of insurance coverage, Government Auditors may issue necessary directions to public entities to insure their assets through NICL in accordance with Insurance Ordinance 2000.
- To establish a Takaful Windows setup for risk-coverage of public sector assets
- To advertise, in print, and online media.
- Offer competitive premium rates and ensure fast claims settlement process.
- Opening up of New Branch in Gilgit-Baltistan Region.
- Electricity and gas metering systems throughout the country can be insured
- Superior information technology system should be developed and implemented by making the entire claims and underwriting process online.
- To insure all motorways across the country through the commuter vehicle insurance (CVI) scheme.
- The study discloses the fact that some private sector general insurers violate the Insurance Ordinance-2000 awfully, but no major enforcement action has been taken by the regulator, culminating in business leakage of the Public Sector Company as well as huge losses to the national exchequer, needed to control these business leakages of public sector.
- As per the research more than 50 percent of public sector valued assets including construction megaprojects, energy power plants, defense strategic properties, and other development projects including Roads & Bridges in the country are stand uninsured. A well trained and skilled business development team may be formed with the objective of better educating to corporate potential clients about their today's insurance needs and offering them suitable insurance converge to reduce their risk of loss.

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