ROYAL EXCHANGE GENERAL INSURANCE COMPANY LIMITED

FINANCIAL CONDITION REPORT FOR NON-LIFE BUSINESS AS AT 31ST DECEMBER 2022

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EXECUTIVE SUMMARY

This report provides an overview of the Financial Condition of the Company. We also understand that this report will form part of the Company's submission to NAICOM. The report has been prepared in accordance with the General Insurance Business Actuarial Reports Guidance Notes (GN12v5.0) published by the Institute and Faculty of Actuaries.

The following are the key conclusions of the report.

- Overall, this report demonstrates that the Company remains adequately capitalized with a strong and conservative investment portfolio to support current and projected liabilities while maintaining compliance with regulatory requirements.

- As at 31st December 2022, the business had shareholder funds of N14.2 billion or 474% of the statutory minimum capital of N3billion. Hence the business is well capitalized from the current regulatory point of view.

- We estimate the economic/risk-based capital required to support the business as at 31st December 2022 as N3.1 billion, implying the shareholder funds coverage of economic capital is 457%. Typically, companies target a minimum coverage of between 120% - 150%, depending on the business size.

- The level of excess capital both on a statutory basis and economic capital basis shows that the company has capacity to write more business and take more risk in search for enhanced return.

- We investigated the asset mix of the business, in relation to its liability profile and in relation to the regulatory policyholder asset mix rules and found the asset mix appears sufficient to meet the policyholder's liability as they fall due.

- We note that the combined ratio for Royal Exchange General Insurance Company Limited increased above 100% as at year ended 2022 implying sub-optimal underwriting. The business needs to employ strategies to bring this ratio within 100%. Potential options available are a reduction of expenses and a more prudent selection of underwriting risks taken and an upward review of pricing margins

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The Board of Directors,
Royal Exchange General Insurance Company Limited
34/36 Oshodi Apapa Expressway
Charity Bus Stop
Lagos.

June 2023

FINANCIAL CONDITION REPORT FOR NON-LIFE BUSINESS AS AT 31ST DECEMBER 2022.

Dear Sir,

Introduction, Purpose, and Limitations

1.1 We are pleased to present our Financial Condition Report ("FCR") for Royal Exchange General Insurance Company Limited ('the Company") as at 31st December 2022.

Purpose:

1.2 This report sets out the outcome of our assessment of the criteria stipulated in the Guidance note (GN12v5.0), issued by the Institute and Faculty of Actuaries, to the extent relevant to Royal Exchange General Insurance Company Limited for the year ended 31st December 2022.

1.3 This report is prepared solely for the purpose of providing an overview of the current financial condition of the Company. We understand that this report will form part of your submission to NAICOM. This report is not to be used for any other purpose other than that described above and should not be distributed to any other parties other than NAICOM.

Limitations:

1.4 Management is solely responsible for the contents and submission of the Financial Conditions Report.

1.5 Because our assessment does not constitute either an audit or a review made in accordance with International Standards on Auditing or International Standards on Review Engagements (or relevant national standards or practices), we do not express any assurance on the financial statements, the financial conditions or the ability of the entity to continue as a going concern for the foreseeable future.

1.6 Had we performed additional procedures, or had we performed an audit or review of the financial statements in accordance with International Standards on Auditing or International Standards on Review Engagements (or relevant national standards or practices), other matters might have come to our attention that would have been reported to you.

1.7 Our report has been prepared based on certain assumptions and is subject to certain limitations. These have been described in Appendix 1 - Reliance and Limitations.

2. Developments in the Business

2.1 We illustrate in the table below how Royal Exchange General books have developed over the year 2021 to 2022.

	2021	2022	YoY Movement
Gross Written Premiums	12,735,110	14,209,292	12%
Gross Premium Income	11,974,393	13,993,881	17%
Reinsurance Expenses	6,480,904	7,991,853	23%
Net Premium Income	5,493,489	6,002,028	9%
Fees & Commission Income	578,933	733,483	27%
Underwriting Profit	1,708,171	1,810,748	6%
Investment income	749,027	1,818,148	143%
Net Underwriting Income	6,072,422	6,735,512	11%
Profit before Tax	339,809	723,497	113%
Income Tax	- 90,113	55,760	-162%
Profit after Tax	249,696	779,257	212%

There was a significant increase in profit after tax by 212%. arising largely from a 6% and 143% increase in underwriting profit and investment income respectively.

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3. Business Overview

3.1 Premium History

Gross Written Premium (GWP)) has increased with a compounded annual growth rate of 6.2% from the year 2020 to 2022.

Line of Business	2020		2021		2022	
	₦' 000	%	₦' 000	%	₦' 000	%
Motor	1,295,423	10.9%	1,533,147	12.0%	1,865,206	13%
Accident	634,481	5.3%	814,078	6.4%	894,316	6%
Bond	853	0.0%	7,555	0.1%	10,878	0%
Marine	705,021	5.9%	898,593	7.1%	940,166	7%
Agriculture	183,442	1.5%	255,669	2.0%	107,914	1%
Fire	993,298	8.4%	1,085,100	8.5%	1,413,281	10%
Engineering	270,301	2.3%	419,298	3.3%	517,972	4%
Special Risk	7,785,421	65.6%	7,721,670	60.6%	8,459,557	60%
Total	**11,868,240**	**100.0%**	**12,735,110**	**100.0%**	**14,209,292**	**100.0%**
% Increase (YoY)			7.3%		11.6%	

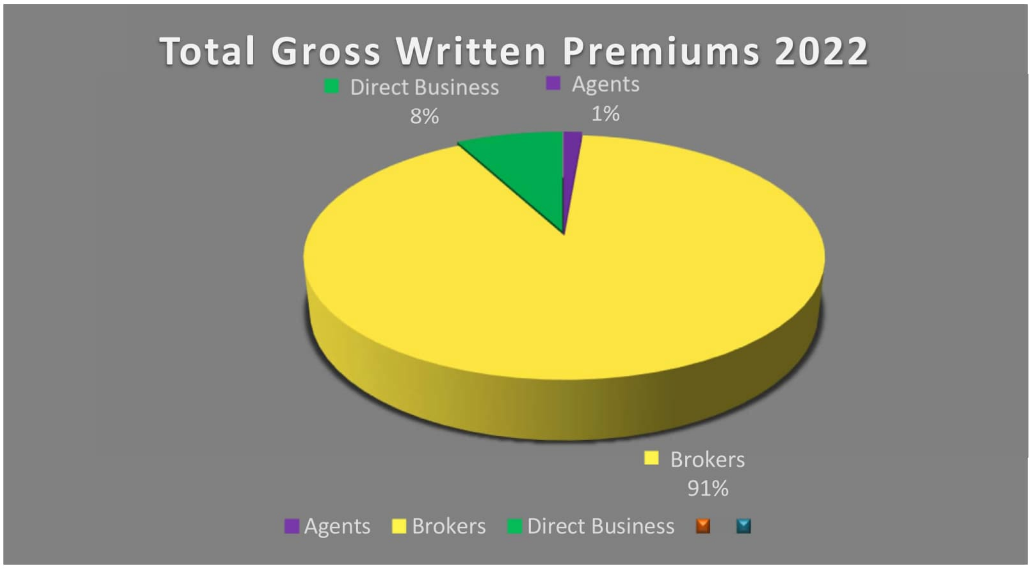
Line of Business	2021	2022	YoY Movement
Motor	1,533,147	1,865,206	22%
Accident	814,078	894,316	10%
Bond	7,555	10,878	44%
Marine	898,593	940,166	5%
Agriculture	255,669	107,914	-58%
Fire	1,085,100	1,413,281	30%
Engineering	419,298	517,972	24%
Special Risk	7,721,670	8,459,557	10%
Total	**12,735,110**	**14,209,292**	**11.6%**

3.1.1 The GWP increased for all the lines of business from 2021 to 2022 except for Agriculture leading to a total increase of 11.6% between the years.

3.2 Distribution Channel

The chart below indicates three channels through which gross written premiums are channeled in.

Experience data shows that a significant proportion of business written by Royal Exchange General came through Brokers which contributed 91% of the total Gross Written Premiums, Agents contributed 1% and Direct Business brought in 8% Of the total GWP.



3.3 Financial Performance

3.3.1 We illustrate below that the company's return on equity as published in the Annual Financial Statements has been consistently lower than the risk-free rate over the 3 years under review. This implies there is a lot more scope to utilize the shareholder funds to generate better returns. Potential options will include reduction in expenses, all other things being equal, more prudent risk selection, business expansion, and excellent investment allocation.

Year	Shareholders Fund ₦'000	Return on Equity (as published in the Accounts) %	Risk Free Rate %
2020	10,222,240	8%	13%
2021	13,400,212	2%	12%
2022	14,228,577	5%	14%

4. Pricing & Premium Adequacy

We illustrate in the table below how premium income has been utilized from 2020 to 2022.

	2020 N'000	2021 N'000	2022 N'000
Gross Premium Income (GPI)	11,572,069	11,974,393	13,993,881
Net Premium Income (NPI)	5,275,791	5,493,489	6,002,028
Gross Written Premium (GWP)	11,868,240	12,735,110	14,209,292
Net Written Premium	5,603,835	6,254,206	6,217,439
Net Claims Incurred	689,532	1,130,027	1,972,915
Management Expenses	1,198,343	2,304,325	3,069,969
Acquisition Expense	1,997,133	2,110,639	2,533,030
Investment Income	582,470	749,027	1,818,148
Claims Ratio	13%	21%	33%
Management Expense Ratio	23%	42%	49%
Acquisition Expense Ratio	38%	38%	41%
Combined Ratio	74%	101%	123%
Investment Income ratio (% NPI)	10%	12%	29%

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Based on the above analysis over a 3-year period, it is noted that there has been an increase in the combined ratios of Royal Exchange General Insurance Company Limited above 100% as at year ended 2022. The business needs to employ strategies to bring this ratio within 100%. Potential options available are a reduction of expenses and a more prudent selection of underwriting risks taken and an upward review of pricing margins. The business was still able to return a profit because of healthy investment income.

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Metric	Definition
Claims Ratio	Net Claims Expenses/ Net Premium Income
Management Expense Ratio	Management Expenses / Net Written Premium
Acquisition Expense Ratio	Acquisition Expenses / Net Written Premium
Combined Ratio	Sum of Claims, Management and Acquisition Expense Ratio
Investment Income ratio (%NPI)	Investment Income / Net Written Premium

5. Assets, Liabilities Management

5.1 Insurance Liability

We illustrate in the tables below, the breakdown of the insurance liability of the business as at the end of the reporting period.

Reserves	Gross Reserve (₦'000)	Reinsurance Assets (₦'000)	Net Reserve (₦'000)
Claims	2,635,950	(1,043,761)	1,592,189
UPR	2,561,073	(891,569)	1,669,504
Total	**5,197,023**	**(1,935,330)**	**3,261,693**

The net reserves increased from N2.88bn to N3.26bn over the years mainly as a result of the 16.9% increase in gross earned premiums.

5.2 Insurance Assets

We illustrate below the composition of the assets backing the insurance liabilities.

Assets	Insurance Funds			
	2022 (₦'000)	%	Regulatory Maximum	Meet Requirement
Cash and Cash Equivalents	4,237,118	41%	No limit	Yes
Fair value through profit or loss (Quoted Equites)	501,713	5%	Maximum of 30%(total) & Maximum of 10% of Policyholders fund per issuer.	Yes
Fair value through other comprehensive income (Unquoted Equites)	519,702	5%	Maximum of 10%(total) & Maximum of 5% of Policyholders fund per issuer.	Yes
FGN Bond at Amortized Cost	4,445,913	43%	Minimum of 35% of Policyholders fund.	Yes
Investment properties	680,000	7%	Maximum of 25% of Policyholders fund.	Yes
	10,384,447	100%		

The asset mix appears appropriate to ensure the insurance liabilities are met as they fall due and is compliant with asset admissibility requirements.

6. Capital Management & Adequacy

Definitions

Metric	Definition
Capital Adequacy Ratio (CAR)	Free Assets/Minimum Capital Requirement
Balance Sheet Solvency Ratio	Shareholders' Funds/Technical Reserves
*Regulatory Solvency Ratio	Free Assets/Technical Reserves

**Free assets include allowance for admissibility rules*

6.1.1 Balance Sheet Solvency

We illustrate in the table below that from 2020 to 2022, the company has a more than sufficient balance sheet solvency ratio.

Year	2020 (N'000)	2021 (N'000)	2022 (N'000)
Technical Liabilities (Net of Reinsurance)	2,298,055	2,876,699	3,261,693
Shareholders Fund (Free Assets)	10,222,240	13,400,212	14,228,577
Balance Sheet Solvency Ratio	**445%**	**466%**	**436%**

The solvency ratios give comfort that liability obligations will be met when they fall due. We highlight the regulatory solvency position below and discuss risk-based solvency in section 8.

6.1.2 Regulatory Solvency

We show in the table below that the company's admissible assets exceeded the regulatory capital requirement of N3bn throughout the 3 years under review.

Year	2020 (₦'000)	2021 (₦'000)	2022 (₦'000)
Technical Liabilities (Net of Reinsurance)	2,298,055	2,876,699	3,261,693
Free Assets (allowing for admissible rules)	10,240,634	9,538,316	10,384,447
Minimum Capital Requirement	3,000,000	3,000,000	3,000,000
Capital Adequacy Ratio (CAR)	**446%**	**332%**	**318%**
Regulatory Solvency Ratio	**341%**	**318%**	**346%**

6.1 Stress Scenario for 2022 Results

In this section, we examine the impact of some defined stresses, on the solvency ratios of the business, to investigate resilience of the capital level.

The table below shows the impact on the solvency ratios of a 20% more than expected level of claims

Year	2022 (₦'000)	2022 - Stressed (N'000)
Technical Liabilities (Net of Reinsurance)	3,261,693	3,914,032
Free Assets (allowing for admissible rules)	10,384,447	9,732,108
Minimum Capital Requirement	3,000,000	3,000,000
Capital Adequacy Ratio (CAR)	**318%**	**249%**
Regulatory Solvency Ratio	**346%**	**324%**

While the regulatory solvency ratio falls to 324%, the Company would still meet its minimum capital requirement in the event of this extreme scenario.

7. Economic Capital

7.1.1 The technical figures (technical liabilities, reinsurance assets, etc.) estimated for balance sheet purposes are our 'best' estimate and broadly reflect the 'mean' of possible outcomes. However, in the course of time these estimates may fluctuate adversely as a result of unexpected realities.

7.1.2 It is prudent and best practice to estimate the extent to which the best estimate can be exceeded due to possible adverse situations and establish the corresponding risk capital, called economic capital. This is the amount of capital that a financial company requires to stay solvent given the riskiness of its assets and operations.

7.1.3 The key risks the company is exposed to are underwriting risk, market risk, counterparty risk and operational risk, they are described and discussed in appendix 6 of the report.

7.1.4 We have calculated for each of the risks, the amount of capital required as at year end 2022 at 95%, 99% and 99.5% level of confidence.

7.1.5 This report discusses in detail capital requirements at 99.5%, which is equivalent to a 1-in-200 event. Put differently, this is the capital required to sustain the company should extreme events that are expected to occur once every 200 years, occur in 2022. Such events would typically lead to large 'unexpected' losses that could significantly affect the fortunes of the company. The results at 95% (1 in a 20year event) and 99% (1 in a 100year event) are shown in appendix 5 and 6 of the report.

7.1.6 We have adopted the following methods in calculating the Economic capital:

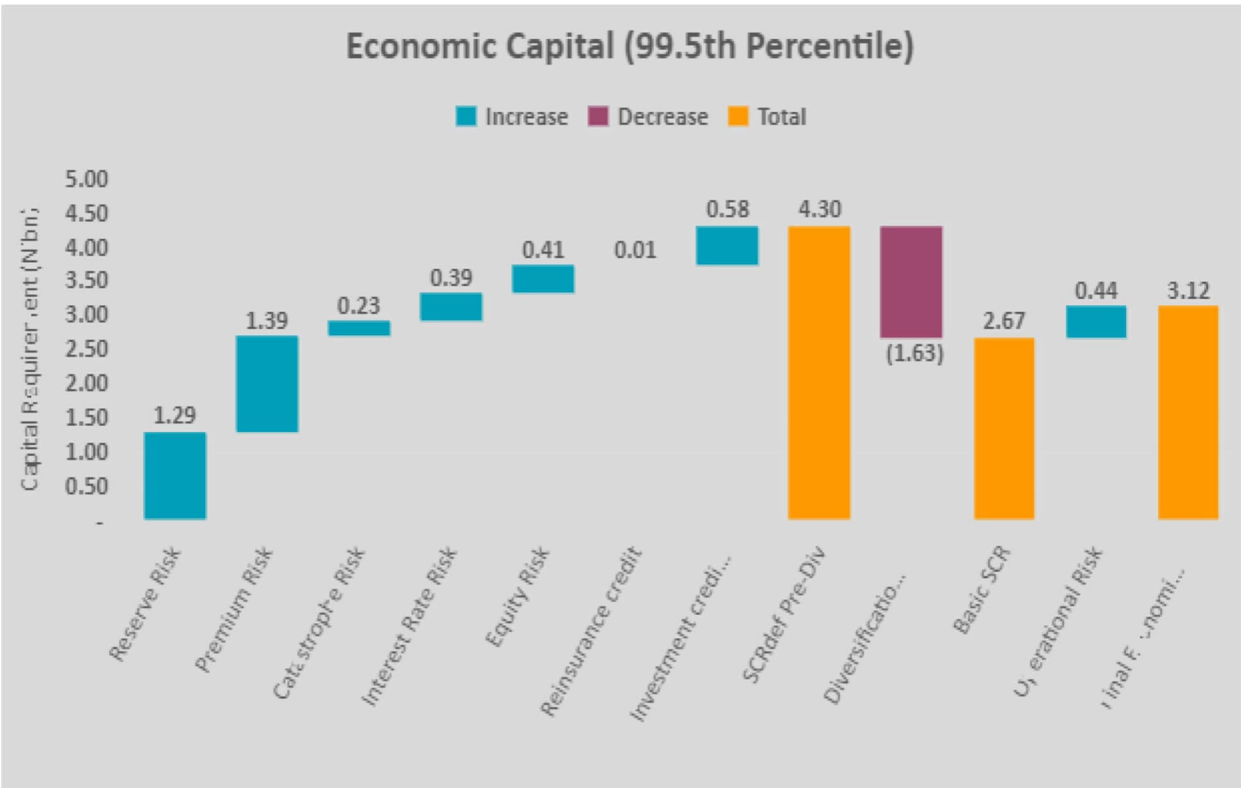
- Value at Risk → this was applied to Market risk and Credit risk
- Stochastic approach using Bootstrapping → this was applied to non-Life reserving and premium risks.
- Solvency II standard formula approach was adopted for operational risk

Detailed explanation of each of the risks including derivation of the stresses applied are given in appendix 6 of the report.

7.1.7 In order to recognize that each individual risk event is unlikely to occur in the same year, aggregation of capital requirements was done. This has the effect of reducing the total required capital – technically called a diversification. The assumed correlation matrix is shown in appendix 7.

7.1.8 The calculations were based on same data used to prepare the IFRS valuation as at 31 December 2022 and asset information shown in section 2.1 of this report.

7.1.9 The following results at 99.5% confidence level were obtained.



7.1.10 As shown in the table above, the total Economic Capital required in connection with the business profile as at 31st December 2022 was N3.1billion which is less than the shareholders' funds of N14.2billion.

7.1.11 This implies Royal Exchange General has capital excess which provides the management with capital flexibility to conduct its business plan over the forward-looking period considering inherent material risks (such as catastrophes) and in anticipation of continued difficult operating conditions in insurance, credit and financial markets.

8. Reinsurance Management Strategy

8.1.1 The Company's reassurance arrangements are summarized in Appendix 3.

For each line of business, we illustrate the 'value for money' being the ratio of total reinsurance inflow (i.e., commission income, reinsurance recoveries) to total reinsurance outflow/cost.

2020 Accident Year

N'000

Class of Business	Motor	Accident	Bond	Marine	Agric	Fire	Engineering	Special Risk	Total
Outflow									
Reinsurance Cost	179,896	-	1,017	188,833	99,964	475,178	254,157	5,065,360	**6,264,404**
Inflow									
Reinsurance Commission	56,680	-	286	46,845	18,469	119,118	73,329	247,661	**562,390**
Reinsurance Recoveries (Incl IBNR)	280,244	240,966	-	99,799	55,446	55,446	948,743	68,210	**1,748,855**
Total Inflow	**336,924**	**240,966**	**286**	**146,645**	**73,914**	**174,564**	**1,022,072**	**315,872**	**2,311,245**
Value for Money Ratio	**187%**	**0%**	**28%**	**78%**	**74%**	**37%**	**402%**	**6%**	**37%**

2021 Accident Year

₦'000

Class of Business	Motor	Accident	Bond	Marine	Agric	Fire	Engineering	Special Risk	Total
Outflow									
Reinsurance Cost	82,119	190,465	3,719	220,160	149,253	547,915	271,714	5,015,559	**6,480,904**
Inflow									
Reinsurance Commission	27,903	84,457	1,113	59,266	33,649	129,554	78,507	164,483	**578,932**
Reinsurance Recoveries (Incl IBNR)	514,807	185,354	351	133,145	105,017	105,017	347,068	39,222	**1,429,983**
Total Inflow	**542,710**	**269,811**	**1,464**	**192,411**	**138,666**	**234,571**	**425,575**	**203,705**	**2,008,915**
Value for Money Ratio	**661%**	**142%**	**39%**	**87%**	**93%**	**43%**	**157%**	**4%**	**31%**

2022 Accident Year

₦' 000

Class of Business	Motor	Accident	Bond	Marine	Agric	Fire	Engineering	Special Risk	Total
Outflow									
Reinsurance Cost	82,119	190,465	3,719	220,160	149,253	547,915	271,714	5,015,559	**6,480,904**
Inflow									
Reinsurance Commission	27,903	84,457	1,113	59,266	33,649	129,554	78,507	164,483	**578,932**
Reinsurance Recoveries (Incl IBNR)	624,173	317,244	386	238,649	105,022	105,022	464,800	94,906	**1,950,202**
Total Inflow	**652,076**	**401,701**	**1,499**	**297,915**	**138,671**	**234,576**	**543,307**	**259,389**	**2,529,134**
Value for Money Ratio	**794%**	**211%**	**40%**	**135%**	**93%**	**43%**	**200%**	**5%**	**39%**

8.1.1 There is a slight increase in the value for money ratio from 31% (2021) to 39% (2022). The increase in all lines of business contributed to the increase in the value for money for this year. A positive value for money ratio is optimal, the higher the value, the better. This implied that the reinsurance arrangement for all the lines of business is optimal.

8.1.2 The value for money ratios, however, does not take cognizance of other benefits reinsurance provides e.g. granting the company capacity to underwrite bigger risks than it would ordinarily have been able to take on due to its limited capital resources.

8.1.3 The above suggests that the treaty arrangement are optimal. Details of the current reinsurance arrangement are provided in Appendix 3.

8.2 Reinsurance Management

8.2.1 Basis and Methods of Retention Levels

The retention limit and the associated product lines were established in liaison with the reinsurers. In setting these limits, the following were taken into consider:

- The nature and quality of the business
- Regulations imposed the regulatory body
- Risk appetite of Royal Exchange General

While Royal Exchange General reinsures eight (8) reinsurers, majority of its businesses are with Waica Reinsurance, Munich Reinsurance, Continental Reinsurance and African Reinsurance which have stable ratings.

Illustrated in the table below is the list of Reinsurers and their ratings:

Reinsurer	Credit Rating
Waica Reinsurance	B+
Munich Reinsurance	A+
Continental Reinsurance	B+
African Reinsurance Corporation.	A
Score Reinsurance	A+
NCA Reinsurance Company	BBB-
Aveni Reinsurance	aa
Swiss Reinsurance	bb

9. Financial Condition as at 31st December 2022

- We have illustrated above that the company has sufficient funds to meet its insurance contract liabilities under stressed conditions.

- The investment portfolio is highly liquid and broadly matches the profile of the company's liabilities.

- The company has a beneficial reinsurance agreement in place, given the good value for money ratios.

- We are thus of the opinion that the company would be able to meet policyholder obligations if and when they fall due and is able to withstand stressed scenarios as evidenced by the stress tests.

9.1.1 We recommend that the company should:

- Explore other distributions channels such as digitization and bancassurance to write its business to widen its reach and increase its penetration in the market.
- Continue to explore strategies to improve the combined ratio of the business to within 100% levels.

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10. New Business Plans

10.1 Business Plan Production

The table below indicates the year-on-year growth for the various lines of businesses.

Royal Exchange General has plans to grow at about 24.2% and 20.7% in 2023 and 2024 respectively. We illustrate the forecast in the table below. This seems quite reasonable due to the current economic constraints.

Line of Business	2022	2023		2024	
	₦' 000	₦' 000	YoY Growth	₦' 000	YoY Growth
Motor	1,865,206	3,390,363	81.8%	5,193,750	53.2%
Accident	894,316	1,317,332	47.3%	2,111,863	60.3%
Bond	10,878	4,880	-55.1%	8,104	66.1%
Marine	940,166	873,664	-7.1%	2,433,204	178.5%
Agriculture	107,914	465,459	331.3%	657,001	41.2%
Fire	1,413,281	1,528,883	8.2%	2,385,648	56.0%
Engineering	517,972	539,263	4.1%	798,391	48.1%
Special Risk	8,459,557	9,522,583	12.6%	7,712,040	-19.0%
Total	**14,209,292**	**17,642,427**	**24.2%**	**21,300,000**	**20.7%**

11. Solvency Projections

11.1 The Projection Process

We have projected the income statements for each of the years 2023 and 2024 assuming claim and expense patterns to date continue into the future, and adopting the premiums projected for each of the years.

The exercise led to projected technical liabilities at the end of each year and a corresponding balance sheet. We have assumed that new money accruing into the fund will be invested in money market instruments.

We report our projected solvency ratios herein, we have also stressed these ratios in anticipation of adverse events and commented accordingly.

11.2 Data and Assumptions

11.2.0 The most recent portfolio status and the corresponding valuation dataset formed the base of the projection.

11.2.1 Projections of technical reserves i.e. outstanding claims and unexpired premium reserves are based on the projected sales volume and the historical information at our disposal. The target sales volume information (as detailed in Section 7.1) was provided by the Company.

11.2.2 The unexpired premium reserves were projected for each line of business assuming risk would occur uniformly throughout the year.

11.2.3 The outstanding claims reserves were projected using the projected earned premiums and the projected claims settlement patterns as determined in the most recent valuation exercise.

11.3 Projection results

The following results were obtained.

INCOME STATEMENT	2022 - Actual	2023	2024
Gross Written Premium	14,209,292	17,642,427	21,300,000
Gross Premium Income	13,993,881	17,067,846	19,888,078
Reinsurance Cost	(7,991,853)	(9,079,365)	(9,206,509)
Net Premium Income	**6,002,028**	**7,988,481**	**10,681,569**
Commission income	733,483	920,105	1,245,047
Net Underwriting income	**6,735,512**	**8,908,586**	**11,926,617**
Gross claims incurred	(2,826,293)	(4,544,777)	(5,985,786)
Claims recoveries	853,378	1,390,150	1,811,070
Net claims incurred	**(1,972,915)**	**(3,154,626)**	**(4,174,716)**
Underwriting expenses	2,951,849	3,549,570	3,816,280
Total Underwriting Expenses	**(4,924,764)**	**(6,704,196)**	**(7,990,996)**
Investment income	1,818,148	1,943,344	2,051,902
Other Operating Income	32,884	182,976	193,198
Expenses	(2,938,281)	(3,379,024)	(3,885,877)
Profit before income tax	723,497	951,686	2,294,843
Income tax expenses	55,760	233,297	562,560
Profit for the year	**779,257**	**1,184,984**	**2,857,403**

The revenue accounts showing the breakdown of underwriting results by line of business for each year is shown in Appendix 3.

	2022 - Actual	2023	2024
TOTAL ASSETS	32,304,101	35,044,483	40,564,442
Liabilities			
Technical Reserves	5,197,023	6,752,420	9,414,975
Trade payables	11,302,786	11,302,786	11,302,786
Other payables	1,575,717	1,575,717	1,575,717
Total Liabilities	**18,075,525**	**19,630,922**	**22,293,478**
Share capital	8,314,355	8,314,355	8,314,355
Contingency reserves	1,277,616	1,277,616	1,916,616
Other reserves	3,706,275	4,235,548	4,235,548
Retained earnings/accumulated losses	930,332	1,586,042	3,804,446
Shareholder's equity	**14,228,577**	**15,413,561**	**18,270,964**
Total liabilities and shareholder's equity	**32,304,101**	**35,044,483**	**40,564,442**

The projected solvency margins are as shown below.

Year	2022 - Actual	2023	2024
Technical Liabilities (Net of Reinsurance)	3,261,693	4,035,601	5,865,388
Shareholders Fund (Free Assets)	14,228,577	15,413,561	18,270,964
Solvency Margin	436%	382%	312%

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12. Conclusion and Recommendations

12.1 Overall, this report demonstrates that the Company remains adequately capitalized with a strong and conservative investment portfolio to support current and projected liabilities while maintaining compliance with regulatory requirements.

12.2 As at 31st December 2022, the business had shareholder funds of N14.2 billion or 474% of the statutory minimum capital of N3billion. Hence the business is well capitalized from the current regulatory point of view.

12.3 We estimate the economic/risk-based capital required to support the business as at 31st December 2022 as N3.1 billion, implying the shareholder funds coverage of economic capital is 457%. Typically, companies target a minimum coverage of between 120% - 150%, depending on the business size.

12.4 The level of excess capital both on a statutory basis and economic capital basis shows that the company has capacity to write more business and take more risk in search for enhanced return.

12.5 We investigated the asset mix of the business, in relation to its liability profile and in relation to the regulatory policyholder asset mix rules and found the asset mix appears sufficient to meet the policyholder's liability as they fall due.

12.6 We note that the combined ratio for Royal Exchange General Insurance Company Limited increased above 100% as at year-ended 2022 implying sub-optimal underwriting. The business needs to employ strategies to bring this ratio within 100%. Potential options available are a reduction of expenses and a more prudent selection of underwriting risks taken and an upward review of pricing margins

12.7 We are delighted to have conducted this Financial Conditioning Report for Royal Exchange General Insurance Company Limited. We hope you find this helpful for preparing and submitting a report to NAICOM.

12.8 We will naturally be delighted to discuss it with you and make necessary presentations.

Yours sincerely,

....

Wise Chigudu
Partner
Fellow, Institute of Actuaries, England.
FRC/2022/PRO/NAS/00000024119

APPENDIX 1- RELIANCE & LIMITATIONS

Reliance

In carrying out this work we have relied upon the financial statements, business plans and other information (including discussions with the Management) provided by Royal Exchange General Insurance Company Limited . The liability information used was the same as that used in the IFRS actuarial valuations. Where stated in this report we have reviewed this data for reasonableness, but we have not verified the accuracy of the information provided to us.

This report takes into account data made available as at 31 December 2022.

In some instances, we were unable to obtain granular information so had to make approximations in certain instances about the composition given knowledge of certain details during the normal end of year valuation process.

Limitations

Our understanding is that this is a Board report that could be used to demonstrate regulatory compliance with NAICOM, when requested.

This report must be contained in its entirety, as individual sections, if considered in isolation, may be misleading.

Except with the consent of EY, the report and any written or oral information or advice provided by EY must not be reproduced, distributed or communicated in whole or in part to any other person or relied upon by any other person other than NAICOM.

The report may be distributed to the Senior Management of Royal Exchange General Insurance Company Limited for the purpose of discussing its contents.

Actuarial estimates are subject to uncertainty from various sources, including changes in claim reporting patterns, claim settlement patterns, judicial decisions, legislation, and economic conditions. It should therefore be expected that the actual emergence of profits will vary, perhaps materially, from any estimates.

The report is subject to the terms and limitations, including limitation of liability, agreed when commencing this exercise.

Building a better working world

APPENDIX 2 – REVENUE ACCOUNTS - BASE SCENARIO

2023 PROJECTIONS ASSUMING FULL BUSINESS PLAN										
	2023									
REVENUE & EXPENSES	Motor	Accident	Bond	Marine	Fire	Engineering	Special Risk	Agriculture	Total	2022
INCOME										
Gross Written Premium	3,390,363	1,317,332	4,880	873,664	1,528,883	539,263	9,522,583	465,459	17,642,427	14,209,292
Gross Earned Premium	3,103,003	1,149,683	7,522	955,367	1,492,860	549,134	9,358,743	451,534	17,067,846	13,993,881
Reinsurance Cost	(269,653)	(279,411)	(7,034)	(380,666)	(761,537)	(342,648)	(6,800,099)	(238,318)	(9,079,365)	(7,991,853)
Net Premium Income	2,833,350	870,272	488	574,701	731,323	206,486	2,558,644	213,215	7,988,481	6,002,028
Commission income	97,258	108,332	2,108	90,043	193,454	98,698	276,503	53,710	920,105	733,483
Net Underwriting income	**2,930,608**	**978,604**	**2,596**	**664,744**	**924,777**	**305,184**	**2,835,148**	**266,926**	**8,908,586**	**6,735,512**
EXPENSES										
Gross claims incurred	(1,086,051)	(402,389)	(968)	(277,584)	(961,852)	(124,496)	(1,403,811)	(287,625)	(4,544,777)	(2,826,293)
Claims recoveries	69,629	106,152	484	81,034	568,045	79,129	399,152	86,525	1,390,150	853,378
Net claims incurred	**(1,016,422)**	**(296,237)**	**(484)**	**(196,550)**	**(393,807)**	**(45,367)**	**(1,004,660)**	**(201,100)**	**(3,154,626)**	**(1,972,915)**
Underwriting expenses										
Maintenance Expense	(211,334)	(84,509)	(393)	(68,381)	(132,570)	(31,825)	(280,762)	(30,517)	(840,291)	(501,506)
DAC	(236,096)	(189,362)	(488)	(101,872)	(253,872)	(69,032)	(1,803,954)	(54,604)	(2,709,279)	(2,450,343)
Total Underwriting Expenses	(447,430)	(273,870)	(881)	(170,253)	(386,442)	(100,856)	(2,084,716)	(85,121)	(3,549,570)	(2,951,849)
Total Expenses	**(1,463,851)**	**(570,108)**	**(1,365)**	**(366,803)**	**(780,249)**	**(146,223)**	**(3,089,376)**	**(286,221)**	**(6,704,196)**	**(4,924,764)**
Underwriting profit	**1,466,756**	**408,496**	**1,230**	**297,941**	**144,529**	**158,961**	**(254,228)**	**(19,295)**	**2,204,390**	**1,810,748**

2024 PROJECTIONS ASSUMING FULL BUSINESS PLAN										
	2024									
REVENUE & EXPENSES	Motor	Accident	Bond	Marine	Fire	Engineering	Special Risk	Agriculture	Total	2023
INCOME										
Gross Written Premium	5,193,750	2,111,863	8,104	2,433,204	2,385,648	798,391	7,712,040	657,001	21,300,000	17,642,427
Gross Earned Premium	4,686,227	1,851,551	7,343	2,011,540	2,107,120	708,058	7,866,174	650,065	19,888,078	17,067,846
Reinsurance Cost	(483,387)	(438,254)	(2,758)	(762,296)	(1,090,014)	(464,093)	(5,605,735)	(359,971)	(9,206,509)	(9,079,365)
Net Premium Income	4,202,840	1,413,297	4,585	1,249,244	1,017,106	243,965	2,260,439	290,094	10,681,569	7,988,481
Commission income	174,347	169,918	826	180,313	276,897	133,679	227,939	81,128	1,245,047	920,105
Net Underwriting income	**4,377,187**	**1,583,215**	**5,411**	**1,429,557**	**1,294,003**	**377,644**	**2,488,377**	**371,222**	**11,926,617**	**8,908,586**
EXPENSES										
Gross claims incurred	(1,640,180)	(648,043)	(945)	(584,457)	(1,357,620)	(160,526)	(1,179,926)	(414,089)	(5,985,786)	(4,544,777)
Claims recoveries	105,156	170,956	472	170,619	801,776	102,030	335,494	124,568	1,811,070	1,390,150
Net claims incurred	**(1,535,024)**	**(477,087)**	**(472)**	**(413,839)**	**(555,844)**	**(58,496)**	**(844,433)**	**(289,521)**	**(4,174,716)**	**(3,154,626)**
Underwriting expenses										
Maintenance Expense	(319,161)	(136,100)	(384)	(143,977)	(187,118)	(41,035)	(235,985)	(43,935)	(1,107,696)	(840,291)
DAC	(345,345)	(287,382)	(640)	(283,719)	(335,145)	(97,587)	(1,281,693)	(77,074)	(2,708,585)	(2,709,279)
Total Underwriting Expenses	(664,507)	(423,482)	(1,024)	(427,696)	(522,263)	(138,622)	(1,517,678)	(121,009)	(3,816,280)	(3,549,570)
Total Expenses	**(2,199,530)**	**(900,569)**	**(1,496)**	**(841,534)**	**(1,078,107)**	**(197,119)**	**(2,362,111)**	**(410,529)**	**(7,990,996)**	**(6,704,196)**
Underwriting profit	**2,177,657**	**682,646**	**3,915**	**588,023**	**215,896**	**180,525**	**126,267**	**(39,307)**	**3,935,620**	**2,204,390**

Appendix 3 - Reinsurance Arrangement

PROPORTIONAL TREATIES							
CLASS	**TYPE**	**LINES**	**RETENTION**	**NLIP**	**TREATY**	**GROSS CAPACITY**	**REINSURERS**
MATERIAL DAMAGE (LOCATIONAL LIMI	Surplus	20	600,000,000.00	-	12,000,000,000.00	12,600,000,000.00	AFRICAN RE 34%, SWISS RE 25%, CONT. RE 20%, WAICA 10%, NCA RE 5%, AVENI RE 3.5%, FBS RE 2.5%
POLITICAL VIOLENCE & TERRORISM	Surplus	5	200,000,000.00	-	1,000,000,000.00	1,200,000,000.00	CONTINENTAL RE 60%, FBS 30%, WAICA RE 10%
MARINE CARGO	Surplus	15	300,000,000.00	-	4,500,000,000.00	4,800,000,000.00	Swiss Re 40%, AFRICAN RE 28%, CONT. RE 20%, FBS RE 5%, WAICA 5%, NCA RE 2%
MARINE HULL	Surplus	13	35,000,000.00	-	455,000,000.00	490,000,000.00	Swiss Re 40%, AFRICAN RE 35%, CONT. RE 18%, WAICA 5% , AVENI RE 2%.
ENGINEERING/ CONTRACTORS ALL RIS	Surplus	20	200,000,000.00	-	4,000,000,000.00	4,200,000,000.00	Africa Re 42%, SWISS RE 25%, CONT. RE 20%. , FBS RE 5%, AVENI RE 5%, NIGERIA RE - 3%
BONDS	Quota Share	50/50	75,000,000.00	-	75,000,000.00	150,000,000.00	Africa Re 50%, CONT. RE 25%, WAICA RE 10%, AVENI RE 10%, NCA 5%
GENERAL ACCIDENTS							
BURGLARY	Surplus	7	200,000,000.00	-	1,400,000,000.00	1,600,000,000.00	CONTINENTAL RE - 50%, AFRICA RE-32.5%, WAICA - 10%. FBS RE - 5%, NIGERIA RE - 2.5%
MONEY	Surplus	5	200,000,000.00	-	1,000,000,000.00	1,200,000,000.00	
GOODS IN TRANSIT	Surplus	7	200,000,000.00	-	1,400,000,000.00	1,600,000,000.00	
ALL RISKS	Surplus	7	200,000,000.00	-	1,400,000,000.00	1,600,000,000.00	
FIDELITY GUARANTEE	Surplus	7	200,000,000.00		1,400,000,000.00	1,600,000,000.00	
PUBLIC LIABILITY	Surplus	4	200,000,000.00	500,000,000.00	800,000,000.00	1,500,000,000.00	
PRODUCTS LIABILITY	Surplus	4	200,000,000.00	500,000,000.00	800,000,000.00	1,500,000,000.00	
PROFESSIONAL INDEMNITY	Surplus	7	200,000,000.00	-	1,400,000,000.00	1,600,000,000.00	
WORKMEN COMPENSATION	Surplus	4	200,000,000.00	500,000,000.00	800,000,000.00	1,500,000,000.00	
WC/GPA COMBINED	Surplus	4	200,000,000.00	500,000,000.00	800,000,000.00	1,500,000,000.00	
PA/GPA	Surplus	7	200,000,000.00	-	1,400,000,000.00	1,600,000,000.00	
DIRECTORS AND OFFICERS LIABILITY	Surplus	5	200,000,000.00	500,000,000.00	1,000,000,000.00	1,500,000,000.00	
AGRICULTURAL PRODUCTS							
LOCAL GOVT	Quota Share		122,500,000.00	-	117,000,000.00	350,000,000.00	Swiss Re 50%, AFRICA RE 30%, CONTINENTAL RE 10%, FBS RE - 10%
STATE	Quota Share		350,000,000.00		468,000,000.00	1,000,000,000.00	Swiss Re 50%, AFRICA RE 30%, CONTINENTAL RE 10%, FBS RE - 10%
NON PROPORTIONAL TREATIES							
PROPERTY WORKING EXCESS OF LOSS	**Excess of Loss**	**1st Layer**	**60,000,000.00**	**-**	**90,000,000.00**	150,000,000.00	Swiss Re 35%, Africa Re 31.5%, Cont.Re 20%, Waica 6%, FBS Re 5%, NCA RE 2.5%
	; ;	2nd Layer	150,000,000.00	-	300,000,000.00	450,000,000.00	Swiss Re 35%, Africa Re 31.5%, Cont.Re 20%, Waica 6%, FBS Re 5%, NCA RE 2.5%
PROPERTY CATASTROPHE EXCESS OF	CAT. XS of Loss		450,000,000.00	-	450,000,000.00	900,000,000.00	Swiss Re 35%, Africa Re 31.5%, Cont.Re 20%, Waica 6%, FBS Re 5%, NCA RE 2.5%
MARINE Cargo WORKING	Excess of Loss		50,000,000.00	-	600,000,000.00	650,000,000.00	Swiss Re 40%, AFRICAN RE 28%, CONT. RE 20%, FBS 5%, WAICA 5%, NCA RE 2%
AVIATION CLASS							
AVIATION - HULL	Excess of Loss	1st Layer	$250,000	-	$1,250,000	$1,500,000	Swiss Re - 50%, PARTNER RE EUROPE SE 35%, WAICA - 14%, FBS RE - 1%
	; ;	2nd Layer	$1,500,000	-	$1,500,000	$3,000,000	Swiss Re - 50%, PARTNER RE EUROPE SE 35%, WAICA - 14%, FBS RE - 1%
AVIATION - LIABILITY RISK	Excess of Loss		$1,000,000	-	$14,000,000	$15,000,000	Swiss Re - 50%, PARTNER RE EUROPE SE 35%, WAICA - 14%, FBS RE - 1%
OIL AND GAS	Surplus	MULT-LINE	$1,200,000.00	-	-	-	
MOTOR	**NLIP**	**rivate Vehicle**		100,000,000.00	-	UNLIMITED	**FACULTAIVE ARRANGEMENT**
		rcial Vehicle (Others)		75,000,000.00	-		
		ial Vehicle(Truck Only)		50,000,000.00	-		

APPENDIX 4 – PROJECTION ASSUMPTIONS

1. Commission Rates

a.

Class	AGENTS	BROKERS	DIRECT
Motor	6.25%	12.50%	0.00%
Accident	0.00%	20.00%	0.00%
Bond	0.00%	20.00%	0.00%
Marine	10.00%	20.00%	0.00%
Agric	0.00%	0.00%	0.00%
Fire	15.00%	20.00%	0.00%
Engineering	10.00%	20.00%	0.00%
Special Risk	0.00%	20.00%	0.00%

b. Reinsurance Commission

Year	Motor	Accident	Bond	Marine	Agric	Fire	Engineering	Special Risk
Commission Income	36%	39%	30%	24%	23%	25%	29%	4%

c. Other Assumptions

Year	2023	2024
Investment Income*	6%	6%
Tax	25%	25%
Management Expenses	15%	15%

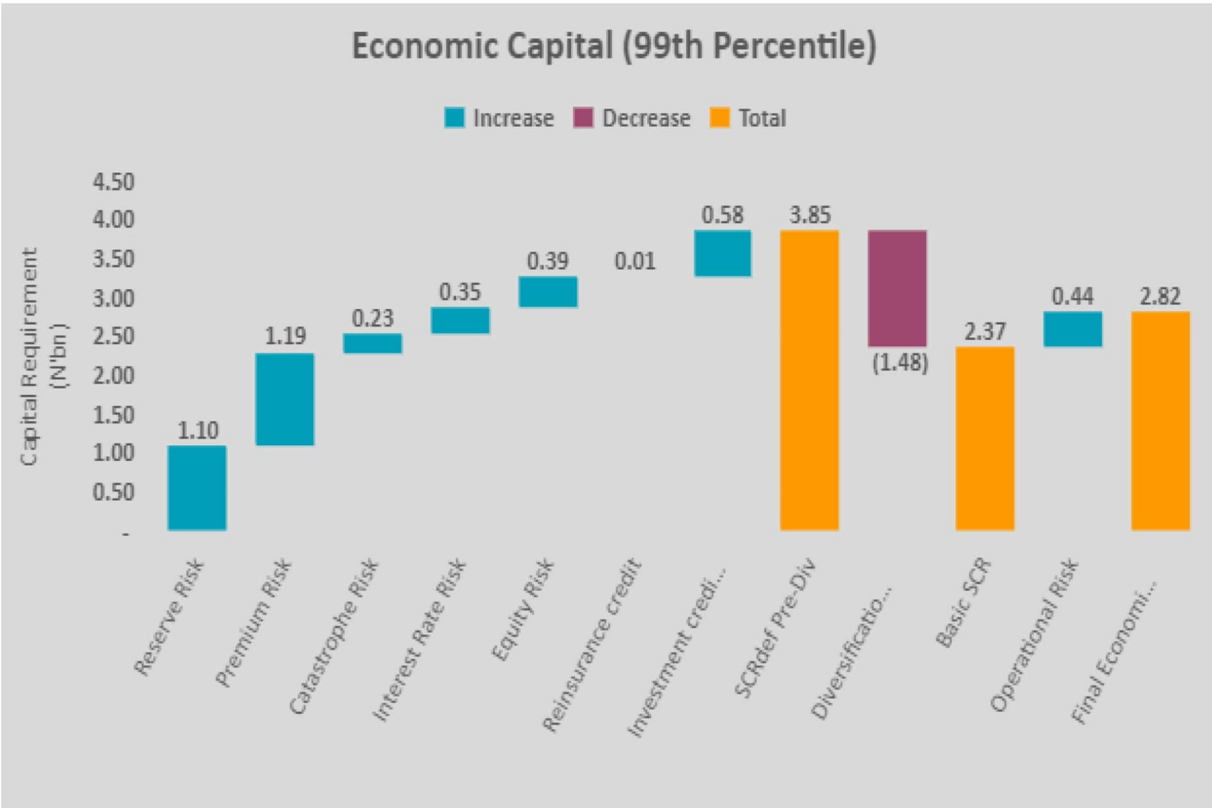
**Derived from the historical weighted average returns*

APPENDIX 5 – COMBINED RATIO TABLE

	Year	Motor	Accident	Bond	Marine	Agric	Fire	Engineering	Special Risk	Total
Gross Written Premiums	2017	2,343,557	-	4,222	751,688	-	1,593,776	166,300	4,858,218	9,717,761
	2018	2,040,089	-	4,594	550,749	-	1,297,235	194,732	6,609,170	10,696,568
	2019	1,838,716	-	217	565,494	42,950	1,058,253	129,772	6,948,950	10,584,353
	2020	1,295,423	634,481	853	705,021	183,442	993,298	270,301	7,785,421	11,868,240
	2021	1,533,147	814,078	7,555	898,593	255,669	1,085,100	419,298	7,721,670	12,735,110
	2022	1,865,206	894,316	10,878	940,166	107,914	1,413,281	517,972	8,459,557	14,209,292
Reinsurance Cost	2017	(255,196)	-	(2,274)	(266,260)	-	(771,241)	(161,753)	(4,473,319)	(5,930,042)
	2018	(296,345)	-	(1,052)	(163,500)	-	(576,793)	(229,296)	(4,317,544)	(5,584,530)
	2019	(211,040)	-	(1,214)	(97,397)	(7,066)	(411,075)	(226,178)	(4,435,226)	(5,389,197)
	2020	(179,896)	-	(1,017)	(188,833)	(99,964)	(475,178)	(254,157)	(5,065,360)	(6,264,404)
	2021	(82,119)	(190,465)	(3,719)	(220,160)	(149,253)	(547,915)	(271,714)	(5,015,559)	(6,480,904)
	2022	(91,591)	(199,066)	(4,549)	(508,224)	(52,026)	(772,177)	(328,004)	(6,036,215)	(7,991,852)
Gross Earned Premium	2017	2,526,120	-	4,164	762,159	-	1,734,144	183,408	5,150,146	10,360,140
	2018	2,211,009	-	2,086	691,576	-	1,374,566	201,993	6,200,033	10,681,264
	2019	1,883,330	-	2,368	522,029	42,950	1,019,215	191,472	6,979,428	10,640,792
	2020	1,870,180	-	2,009	598,069	175,134	1,002,389	218,517	7,705,771	11,572,069
	2021	1,386,643	729,571	7,028	841,839	258,414	909,920	331,797	7,509,181	11,974,393
	2022	1,753,300	874,982	7,715	942,314	110,549	1,381,242	488,293	8,435,485	13,993,881
Net Earned Premium	2017	2,270,924	-	1,890	495,899	-	962,902	21,655	676,827	4,430,097
	2018	1,914,664	-	1,034	528,076	-	797,773	(27,303)	1,882,489	5,096,734
	2019	1,672,290	-	1,154	424,632	35,885	608,140	(34,706)	2,544,203	5,251,596
	2020	1,692,373	-	992	408,736	76,554	513,335	(24,096)	2,607,896	5,275,790
	2021	1,304,524	539,106	3,309	621,679	109,161	362,006	60,082	2,493,621	5,493,489
	2022	1,661,709	675,915	3,167	434,090	58,523	609,065	160,289	2,399,270	6,002,028
Incurred Claims (Gross)	2017	(527,380)	-	(19)	(60,050)	-	(1,782,152)	(64,538)	(188,500)	(2,622,638)
	2018	(887,301)	-	(18,578)	(196,394)	-	(1,425,449)	(47,179)	(753,526)	(3,328,427)
	2019	(322,461)	-	13,000	(156,034)	(20,630)	(398,803)	(51,262)	(154,859)	(1,091,049)
	2020	(250,759)	-	-	(81,381)	(39,268)	(112,903)	(81,665)	(617,404)	(1,183,379)
	2021	(341,997)	(135,303)	1,809	(235,321)	(122,738)	(388,377)	(55,814)	(287,452)	(1,565,194)
	2022	(538,903)	(250,978)	365	(173,262)	(68,180)	(854,780)	(21,338)	(919,218)	(2,826,293)
Incurred Claims (Net)	2017	(412,503)	-	9,739	(24,888)	-	(631,486)	16,779	(24,394)	(1,066,753)
	2018	(771,953)	-	(9,289)	(126,812)	-	(463,632)	39,919	538,660	(793,107)
	2019	(259,630)	-	6,500	(139,013)	(17,528)	(481,950)	(1,652)	(78,010)	(971,283)
	2020	(264,248)	-	173	(49,132)	(32,092)	(246,238)	(51,420)	(46,576)	(689,532)
	2021	(298,068)	(125,529)	904	(166,189)	(71,322)	(325,190)	59,179	(203,813)	(1,130,028)
	2022	(475,485)	(184,769)	183	(141,082)	(22,483)	(281,328)	(9,204)	(858,747)	(1,972,916)
Commission Received	2017	75,344	-	682	65,450	-	147,879	51,731	123,551	464,637
	2018	94,062	-	341	49,414	-	160,325	65,162	125,185	494,488
	2019	69,580	-	364	30,967	1,326	118,830	68,673	128,550	418,290
	2020	56,680	-	286	46,845	18,469	119,118	73,329	247,661	562,390
	2021	27,903	84,457	1,113	59,266	33,649	129,554	78,507	164,483	578,932
	2022	39,125	66,091	1,365	97,754	11,721	185,261	88,921	243,243	733,482
Underwriting expenses	2017	(308,640)	-	(557)	(97,630)	-	(210,061)	(21,956)	(641,605)	(1,280,449)
	2018	(390,415)	-	(676)	(155,295)	-	(327,020)	(51,615)	(1,963,421)	(2,888,442)
	2019	(426,113)	-	(476)	(145,860)	(11,485)	(309,255)	(35,570)	(2,437,165)	(3,365,925)
	2020	(402,956)	-	(436)	(179,272)	(38,816)	(329,947)	(46,364)	(2,613,928)	(3,611,719)
	2021	(247,191)	(175,824)	(981)	(183,963)	(51,672)	(212,146)	(69,194)	(2,408,047)	(3,349,018)
	2022	(271,251)	(218,464)	(1,305)	(195,958)	(18,311)	(361,784)	(96,830)	(1,787,946)	(2,951,849)
Management expenses	2017	-	-	-	-	-	-	-	-	(1,575,196)
	2018	-	-	-	-	-	-	-	-	(1,914,721)
	2019	-	-	-	-	-	-	-	-	(1,060,585)
	2020	-	-	-	-	-	-	-	-	(1,198,343)
	2021	-	-	-	-	-	-	-	-	(2,304,325)
	2022	-	-	-	-	-	-	-	-	(3,069,969)
Claims Ratio (Net)	2017	21%	0%	0%	8%	0%	103%	35%	4%	24%
	2018	40%	0%	891%	28%	0%	104%	23%	12%	16%
	2019	16%	0%	563%	33%	49%	79%	5%	3%	18%
	2020	16%	0%	17%	12%	42%	48%	213%	2%	13%
	2021	-	-	-	-	-	-	-	-	21%
	2022	-	-	-	-	-	-	-	-	33%
Expense Ratio	2017	10%	0%	29%	6%	0%	6%	101%	77%	54%
	2018	15%	0%	32%	20%	0%	21%	50%	98%	85%
	2019	21%	0%	10%	27%	28%	31%	95%	91%	76%
	2020	20%	0%	15%	32%	27%	40%	76%	90%	80%
	2021	17%	17%	4%	20%	17%	23%	16%	90%	92%
	2022	14%	23%	41%	23%	11%	29%	5%	64%	88%
Combined Ratio	2017	28%	0%	545%	12%	0%	72%	179%	80%	78%
	2018	56%	0%	931%	44%	0%	79%	196%	126%	100%
	2019	37%	0%	554%	60%	77%	111%	91%	94%	95%
	2020	36%	0%	2%	44%	69%	88%	289%	91%	93%
	2021	40%	40%	31%	47%	82%	113%	114%	98%	113%
	2022	43%	50%	47%	55%	50%	75%	11%	100%	121%

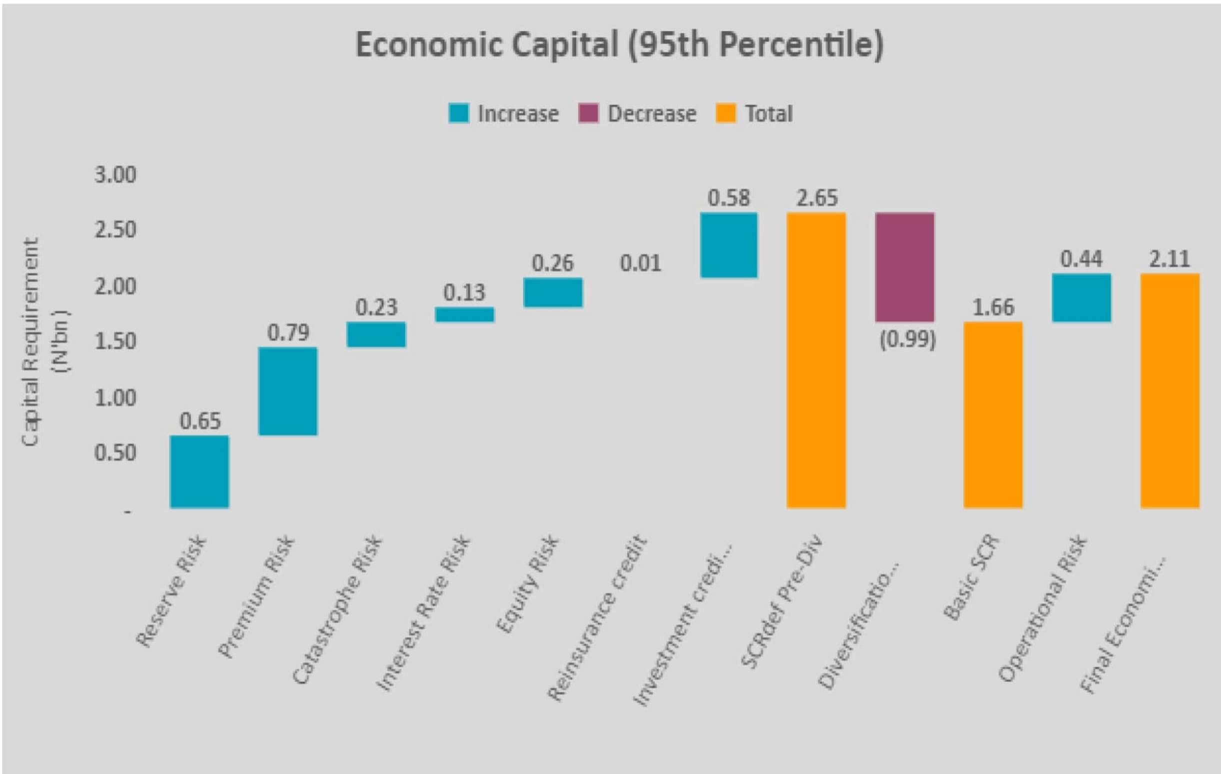
APPENDIX 6: ECONOMIC CAPITAL RESULTS AT 99% CONFIDENCE LEVEL

Should the confidence level be lowered our confidence level to 99%, the total economic capital requirement reduces to N2.8 billion which represents about 505% of the shareholder funds as at December 31, 2022.



APPENDIX 7: ECONOMIC CAPITAL RESULTS AT 95% CONFIDENCE LEVEL

Should the confidence level be lowered our confidence level to 95%, the total economic capital requirement increases to N2.1 billion which represents about 675% of the shareholder funds as at December 31, 2022.



Appendix 8: Economic Capital Methodology & Stress Level Derivation.

We present below, detailed explanation on how each of the risk were modelled including stress levels derivation.

A. MARKET RISKS

1.1 Market risk is defined as the potential for adverse change in the net assets (Market Value of assets less Market Value of liabilities) due to movements in market factors such as equity prices, interest rates, property prices and foreign exchange.

1.2 The company's insurance funds are mainly invested in money market instrument and hence have a very low exposure to market risks.

1.3 The market risk capital requirement $\boldsymbol{C_{Mkt}}$ for each risk was calculated using the following formula:

$$C_{Mkt} = (A_{Mkt} - A_0)$$

Where C_{Mkt} – capital calculation for market risk

A_{Mkt} – stressed assets value

A_0 – base market value of assets

1.4 The stresses applied for the market risk module were as follows:

Asset class	Stress level @ 95%	Stress level @ 99%	Stress level @ 99.5%
Equity	24.06%	35.90%	37.38%
Property	15.72%	21.64%	22.38%
Interest rate	29.1%	40.12%	41.5%

1.5 The above stresses were obtained by using a combination of fitting historical data of various market indices (were available) to find the appropriate stress level and benchmarking against the Solvency II widely used stress levels.

1.6 The details of the derivation and computation are contained below for each sub-risk module.

1.7 Equity risk

I. This is the sensitivity of assets, liabilities and financial investments to fluctuations in the level or volatility of the market prices for equities.

II. The company is invested in both quoted and unquoted equities. Both types of equities were stress tested.

III. The level of stress was derived by considering the historical distribution of the total return Nigerian Stock Exchange ("NSE") index and fitting a distribution to determine the stress level at the various confidence levels.

IV. We fitted the NSE historical index values from January 1985 to December 2020. The normal distribution was a good fit for the data. Using the normal distribution, we determined stress levels of 29%, 40% and 41% for confidence levels of 95%,99% and 99.5% respectively.

V. We also checked how frequently historical annual returns have fallen or been close to the 29.1%, 40.12% and 41.5% levels. In 2008, the stock index fell by about 46% and in 2011 also fell by about 23%.

VI. Both the quoted and unquoted equities were assumed to be similarly affected by any declines in stock market. This assumption would need to be revisited in the next assessment.

1.8 Interest Rate risk

I. Interest rate risk is caused by the sensitivity of the value of any assets, liabilities and financial investments to fluctuations in the term structure of interest rates or interest rate volatility, whether valued by mark-to-model or mark-to-market techniques.

II. Stresses were determined by constructing the term structure of interest rates by referencing the 12-month, 3-year, 5 year, 7 year, 10 year and 20 year yields from the Federal Government Bonds.

III. The historical returns were fitted to distributions to determine the best fit distribution. The normal distribution was a good fit. The normal distribution was used instead in order to apply some consistency with the other market risk stresses.

IV. As the local term structure of interest rates show a flat yield curve; a flat stress level was applied to bonds of varying durations.

V. The stresses used are shown in table 3 above at various confidence levels to all bond yields of varying duration according to the Company bond holdings.

VI. The stressed yields were applied using the formula: current yield x (1+Upward stress) OR current yield x (1+Downward stress).

VII. The capital requirement was then determined by adopting the stress level (between the upward and the downward stress) that resulted in a higher capital requirement i.e. Interest

Rate capital requirement = Max {0; Upward stress capital; Downward stress capital}

1.9 The overall market risk capital was then derived by combining the equity, property and interest rate risk capital using the suggested correlation matrix below.

$$C_{Mkt} = \sqrt{\sum CorrMkt_{ij} * C_{Mkt_i} * C_{Mkt_j}}$$

Where C_{Mkt} – overall market risk capital calculation including equity, property and interest rate

C_{Mkt_i} – capital for i-th risk (i could be any of the three risks)
C_{Mkt_j} – capital for j-th risk (j could be any of the three risks)

1.10 The correlation matrix used is shown in Appendix 7

1.11 Non-Life Insurance risks

The non-life insurance risks modelled were:

- Reserving risk
- Premium risk
- Catastrophe risk

I. Reserving risk

This is one of the sources of underwriting risk for general insurance.

Reserve risk results from fluctuations in the timing and amount of claim settlements.

The reserve risk methodology was as follows:

- We used the bootstrap approach to calculate the mean and standard deviation of losses.
- We then used the mean and standard deviation to derive the parameters of the lognormal distribution which was used to estimate the 95th, 99th and 99.5th percentiles of the reserve distribution.
- Reserve capital is the difference between each of the following percentiles; 95th-percentile, 99th-percentile or 99.5th-percentile of the distribution and the 50th -percentile (Best estimate).

II. Premium risk

This is another source of underwriting risk for General insurance.

Premium risk results from fluctuations in the timing, frequency and severity of insured events. It relates to the unexpired risks on existing contracts. Premium risk includes the risk that premium provisions turn out to be insufficient to compensate claims or need to be increased.

The premium risk methodology was as follows:

- Average loss ratios were derived from the expected loss ratio in the business plan (pricing)
- Historical loss ratios were investigated and deviations from the mean studied.
- The lognormal distribution was fit (which was the best fit) to the deviations

III. Catastrophe risk

This is Catastrophe for the general insurance business.

It covers mainly high severity and low frequency catastrophic events e.g. floods, hurricanes, large accidents impacting on all general insurance lines of business insured by the Company.

There have been no major catastrophic events in Nigeria recently hence the data to use in determining the risk capital was scarce.

The catastrophe risk methodology was therefore as follows:

- The 2021 loss ratios were increased by 1000% for all lines of business to resemble a catastrophic-like event
- A 1% probability of occurrence was applied to determine the final capital requirement.

B. CREDIT RISK

I. Credit risk arises as a result of the unexpected default, or deterioration in credit standing, of an insurer's counterparties or debtors.

II. The scope of the calculation under this risk module covered possible defaults by banks; where cash and cash equivalents are held by the Company, defaults by reinsurers compromising reinsurance recoveries and the inability by debtors to pay their dues.

III. The following exposures to counterparties were used:

- Banks → cash and cash equivalent holdings
- Reinsurers → estimated reinsurance recoveries over the next 12 months
- Debtor → amounts owed.

IV. The expected losses given default were calculated using the latest credit ratings and associated probabilities of default for the different counterparties. A combination of local agencies and the S&P default rates were used for the bank holdings as per the following table:

Table 5

Rating Scale	Default Probability
AAA	0.00%
AA+	0.00%
AA	0.02%
AA-	0.03%
A+	0.05%
A	0.05%
A-	0.06%
BBB+	0.09%
BBB	0.15%
BBB-	0.24%
BB+	0.32%
BB	0.48%
BB-	0.96%
B+	1.98%
B	3.13%
B-	6.52%
Unrated	26.53%

V. The above default rates were applied to both the banks and reinsurers' counterparties to the Company.

VI. The formula used was: Estimated exposure x Probability of Default x Loss Given Default.

VII. We assumed a 100% loss given default, which is a conservative assumption.

C. OPERATIONAL RISK

I. This is the risk of loss arising from inadequate or failed internal processes, or from personnel and systems, or from external events.

II. Operational risk is generally a material risk and one of the major causes of organizational failure.

III. There are several approaches used to assess Operational risk namely;

- Basic indicators or some Standard Formula – this is a simpler approach and largely defined by regulatory bodies. It is transparent and a well-known approach.
- Scenario approach – qualitative scenario assessments of the operational risks as defined by management through the risk heat map are transformed into quantitative assessments to determine the overall operational risk capital
- Statistical or Loss Distribution Approach – this uses a lot of statistics. The amount of possible losses and frequency of losses are modelled separately and then combined to determine the overall capital requirement. This approach relies on the availability of credible historical and forward-looking data.
- The Structural or Causal approach – this is the most complex and recently researched approach. It also relies on understanding the interdependencies across risks in addition to the data availability.

IV. We adopted the standard formula approach due to limited quantity of data available. The approach took into account the earned premium, technical provisions and Base capital calculated before operational risk.

V. The formula used to compute the capital requirement was as follows:

$$C_{op} = \text{Min}\,\{0.3 * BSCR,\ BOp\} + 0.25\ \times\ Exp_{nl}$$

Exp_{nl} is the amount of annual expenses incurred during the previous 12 months in respect of non-linked business

$BSCR$ is the preliminary capital required before allowing operational risk and, for the risk requirements it is defined as:

$$\text{CR Op} = \sum(C_{ins} + C_{Mkt} + C_{Credit})$$

BOp is the basic operational risk requirement for all business and is determined as follows:

$$BOp = Max\left\{Op_{premiums};\ Op_{provisions}\right\}$$

Where

$$Op_{premiums} = 0.03 \times\ Earn_{nl}\ + Max\,\{0, 0.03\ \times\ [Earn_{nl} -\ 1.1\ \times pEarn_{nl}]\}$$

and $Op_{provisions} = 0.03\ \times Max\,\{0, Tp_{nl}\}$

$Earn_{nl}$ are the gross premiums earned during the previous 12 months.

$pEarn_{nl}$ are the gross premiums earned during the 12 months prior to the previous 12 months.

TP_{nl} are the technical provisions

VI. In the future, we recommend the following be recorded at granular level:

- Frequency of occurrence of all risk scenarios captured in the Risk Heat Map
- Identification of new exposures and new likelihood percentages after mitigation efforts have been applied.

This would improve how operational risk is quantified.

APPENDIX 8 – CORRELATION MATRICES

Correlations for Market risks have been derived using actuarial judgement and referencing correlations being used in other jurisdictions for new solvency regimes.

Local market relevance was taken into account before applying these correlations.

As a rule of thumb, the following thought process was applied:

Correlation coefficient	Interpretation
0%	Independent
25%	Weakly correlated
50%	Moderately correlated
75%	Strongly correlated
100%	Dependent

The correlation matrices used for diversification are shown below.

Market risk correlations

Parameters						
$Corr_{ij}$	Mkt_{int}	Mkt_{eq}	Mkt_{prop}	Mkt_{sp}	Mkt_{conc}	Mkt_{fx}
Mkt_{int}	**100%**	0%	0%	0%	0%	25%
Mkt_{eq}	0%	**100%**	25%	75%	0%	25%
Mkt_{prop}	0%	25%	**100%**	50%	0%	25%
Mkt_{sp}	0%	75%	50%	**100%**	0%	25%
Mkt_{conc}	0%	0%	0%	0%	**100%**	0%
Mkt_{fx}	25%	25%	25%	25%	0%	**100%**

Comments:

- Equity vs Property – the local stock and property markets have seen low correlations.
- The drop in equity values seem not to affect the property values, hence a weak correlation assumption.
- Interest rate vs Equity/Property – no correlation was assumed if under the interest rate stress an increase in interest rates triggered a capital requirement (as opposed to a decrease in interest rates). 50% correlation was assumed if the decrease in interest rates would trigger a capital requirement under the interest rate stress.
- Spread, concentration and foreign exchange risks were not modelled.

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