Sovereign Trust Insurance Plc

Financial Condition Report as at 31st December 2022

Prepared by

LOGIC PROFESSIONAL SERVICES

Rear Wing, 4th Floor Oshopey Plaza, 17/19, Allen Avenue, Ikeja, Lagos.

April 2023

EXECUTIVE SUMMARY

This report discusses the adequacy of the company's resources (capital, reinsurance arrangements) in meeting its contracted obligations, especially if adverse situations arise.

The following are the key conclusions of the report.

- The company is in a sound Financial Condition as at report date.
- We estimate that the economic/risk-based capital required to support the business at 31st December 2022 as ₦2.3billion. This is c.77% of the current minimum statutory requirement of ₦3billion. The business however has Shareholder Funds of ₦10.4billion or 452% the needed Risk Based Capital.
- Hence, the business is well capitalized and is likely to meet all obligations as when due.
- The company's Capital Adequacy Ratio (CAR) has increased from 273% in 2021 to 299% in 2022. However, the recent recapitalization moves by the insurance regulator requiring a minimum capital requirement of ₦10bn, this still implies that the company requires at least **₦1.1bn** capital injection to meet up with the new capital requirements.
- The company's reinsurance program has been unprofitable, resulting in consistent significant losses over the review period. We recommend a reinsurance optimization exercise be carried out with a view to minimizing losses whilst maintaining adequate protection in line with the company's risk appetite. A quick execution plan could be to negotiate profit commission.
- The company's investment income has been low implying the company's current asset mix is not generating good returns. We recommend the company articulates a reviewable investment policy/strategy, indicating asset allocation mix and selection criteria, for each of the policyholders and shareholder funds, aimed at enhancing investment returns and increased liquidity to readily meet policyholder liability.
- As the company looks to recapitalize, we advise an in-depth business planning exercise be carried out to inform capital allocation into profitable business lines.

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April 13, 2023

The Board of Directors,
Sovereign Trust Insurance Plc,
17, Ademola Adetokunbo Street,
Victoria Island,
Lagos, Nigeria.

Attention: Mr. Olaotan Soyinka (Managing Director)

Dear Sir,

Financial Condition Report as at 31st December 2022 – Sovereign Trust Plc

1 Introduction

1.1 We are pleased to present our Financial Condition Report ("FCR") for Sovereign Trust Plc ('the Company") as at 31st December 2022.

1.2 The aim of the Financial Condition Report is to present a non-technical easy to read document detailing the recent business and operational trends, the current financial status as well as an assessment of the business remaining solvent in the near future basing the future projections on different risk scenarios.

1.3 The report, as well as meeting Management's need to continuously appraise themselves of the status of the business; will fulfill the requirement to submit a Financial Condition Report as stipulated by NAICOM in the roadmap to Risk Based Solvency regime issued in October 2018.

1.4 This report discusses the adequacy of the company's resources (capital, reinsurance arrangements) in meeting its contracted obligations, especially if adverse situations arise.

2 Business Overview

2.1 Premium History

2.1.1 The company realized a 20% growth in gross premiums in 2022 compared to 2021. All lines of business had positive growth as shown below.

Gross Written Premiums (2018 – 2022)

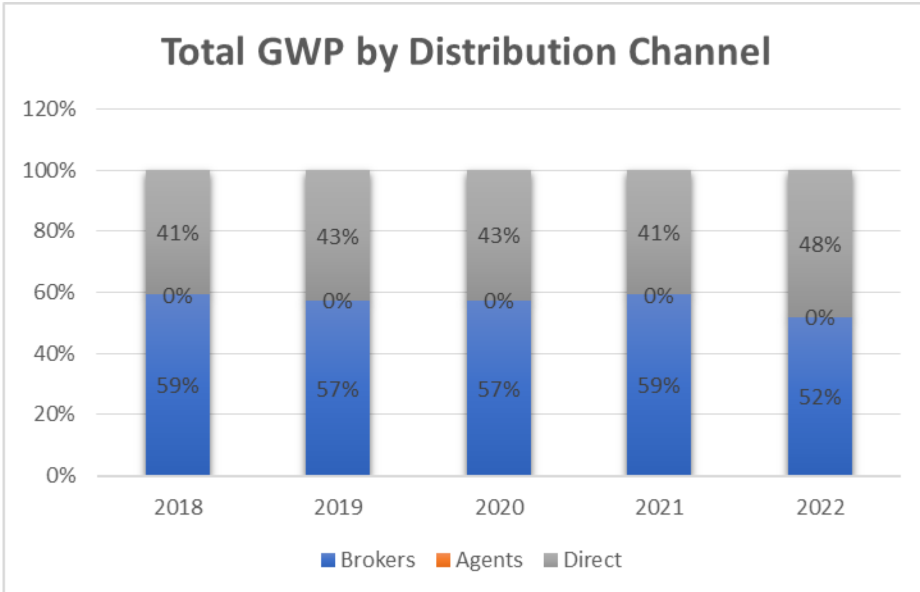
Line of Business	2018		2019		2020		2021		2022	
	N'000	%	N'000	%	N'000	%	N'000	%	N'000	%
Motor	1,591,681	15.1%	2,286,314	21.0%	2,103,120	19.0%	2,351,529	18.6%	2,196,355	14%
Fire Property	1,720,061	16.4%	1,819,409	16.7%	1,672,083	15.1%	2,042,448	16.1%	2,377,402	16%
Marine	574,468	5.5%	825,634	7.6%	944,035	8.5%	1,104,907	8.7%	1,063,688	7%
General Accident	1,071,432	10.2%	918,097	8.4%	841,103	7.6%	935,736	7.4%	1,063,143	7%
Engineering	1,704,101	16.2%	1,140,920	10.5%	1,527,818	13.8%	1,771,425	14.0%	1,619,389	11%
Oil & Energy	3,851,335	36.6%	3,889,282	35.7%	3,991,247	36.0%	4,466,370	35.2%	6,908,794	45%
Total	**10,513,078**	100.0%	**10,879,656**	100.00%	**11,079,406**	100.00%	**12,672,415**	100.00%	**15,228,771**	100.00%

2.1.2 We observe the following:

- Oil & Energy continue to contribute a large percentage of the total business written. The proportion is now c.45% which is higher than the levels in 2021
- Fire was second largest with the Naira contribution in excess of ₦2bn.
- General Accident and Marine maintained a modest growth rate in excess of 10% in 2022 and now contributes c.7% and c.11% respectively.

This distribution, in our view, implies there was no undue concentration risk by business type over the review period as no line business is dominating proportionately over others.

2.1.3 In the diagrams below, we illustrate the sources of new business by distribution channel. The company has consistently acquired about 60% of overall Gross Written Premiums through brokers. This places a greater need to nurture the relationship with the brokers in order to keep new business volumes.



We advise that the company should also consider targeted business development activities that aim to cover the three distribution channels for all lines of business.

2.2 Experience analyses, Asset Mix and Capital Adequacy

2.2.1 We discuss in this section, some metrics that illustrate the profitability and investment returns on the portfolio.

Metric	Definition
Claims Ratio	Net Claims Incurred/ Net Earned Premium
Expense Ratio	{Underwriting Expenses + Management Expenses – Commission Income}/ Net Written Premium
Combined Ratio	Claims Ratio + Expense Ratio
Capital Adequacy Ratio	Free Assets/Higher of 15% of Net written premiums or N3bn
Solvency Ratio	(Free Assets+ Policyholders Funds)/Technical Reserves

2.2.2 The table below shows recent experience of Claims, Expense and Combined Ratios.

Year	Claim Ratio	Expense Ratio	*Combined Ratio	Investment Income as a % of NPI
2018	26%	55%	81%	6%
2019	39%	58%	97%	7%
2020	34%	44%	78%	7%
2021	39%	50%	89%	4%
2022	38%	60%	97%	5%

**breakdown of combined ratio by line of business is shown in appendix 4 of the report*

The combined ratio has increased in 2022 compared to 2021 due to increases in expense ratio whilst claims ratio remained relatively stable year on year.

We advise the company should closely monitor expenses and target expense ratio under 50% in order to enhance the returns to shareholders.

Year	Profit After Tax	*Underwriting Profit	Investment Income
2018	344,236	1,922,967	334,495
2019	503,382	2,073,391	405,797
2020	687,699	1,991,252	448,197
2021	974,734	2,413,835	316,870
2022	838,773	2,655,645	300,506

**Excludes Management Expenses*

The company's profit after tax decreased by about 13% in 2022 despite increase in underwriting profits. This was mainly due to increase in management expenses and drop in investment income.

2.2.3 The company's return on equity slightly deteriorate slightly in 2022 as shown below. A sustained underwriting results and improvement in Investment income would be help in maintaining this trend.

Year	Shareholders' Fund	Return on Equity
2018	5,820,355	6%
2019	7,786,606	6%
2020	8,626,099	8%
2021	9,617,229	10%
2022	10,443,848	8%

2.3 Asset Mix

We illustrate below the assets mix backing the technical provisions in 2019, 2020, 2021 and 2022

Assets	Insurance Funds N'000							
	2019	**%**	**2020**	**%**	**2021**	**%**	**2022**	**%**
Cash & Cash Equivalent	7,141,882	41%	7,274,017	39%	7,982,828	39%	8,678,703	40%
Financial Assets	8,438,718	48%	8,653,421	46%	9,786,307	49%	10,578,183	49%
Reinsurance Assets	2,021,507	11%	2,684,186	14%	2,314,111	12%	2,427,677	11%
Total	17,602,107	100%	18,611,624	100%	20,083,246	100%	21,684,563	100%

The company continue to hold mainly cash and cash equivalent and financial assets to back its liability pool. Cash or cash-like investments help with liquidity.

The overall assets backing liabilities have remained stable over the review period. We are of the view that this asset mix is adequate to provide sufficient buffer that ensure liquidity needs will be met as and when due.

2.4 Capital Adequacy

2.4.1 Balance Sheet Solvency

We illustrate in the table below that for most years, the company had sufficient buffer to meet technical liabilities.

Year	2022	2021	2020	2019	2018
Technical Liabilities	4,553,724	4,543,448	3,762,588	3,324,005	3,005,194
Shareholders Fund (Free Assets)	9,686,748	9,617,229	8,626,099	7,786,606	5,820,355
Balance Sheet Solvency Ratio	313%	312%	329%	334%	294%

The solvency ratios have and continue to be reasonably high and give comfort that ordinarily, liabilities are expected to be met as and when due. We highlight regulatory solvency below and discuss risk-based solvency in section 6.

2.4.2 Regulatory Solvency

We illustrate below that the company met its regulatory solvency requirements in all the years under review

	2022	2021	2020	2019	2018
Technical Liabilities	5,281,685	4,543,448	3,762,588	3,324,005	3,005,194
Free Assets (allowing for admissible rules)	8,981,281	8,175,834	7,230,174	6,691,725	4,520,753
Maximum of 15% Net premium and N3billion	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
Capital Adequacy	**299%**	**273%**	**241%**	**223%**	**151%**
Regulatory Solvency Ratio	**270%**	**280%**	**292%**	**301%**	**250%**

2.4.3 The company met statutory capital requirements in all years, and at the review date had 299% the minimum required capital level, which currently stood at N3bn. We note that the insurance regulator is looking to increase the minimum capital requirement to N10bn.This implies that the company requires at least N1.1bn capital injection to meet up with the new capital requirements.

2.6 Reinsurance

2.6.1 We note from the schedule of latest reinsurance arrangements (shown in Appendix 2), that in 2022, the company reviewed retention limits to the reinsurance arrangements which is sensible if more capital is to be available to retain those risks. This needs to be monitored in line with any future capital injections and linked to the risk appetite.

2.6.2 We however illustrate in the tables below, the cash flows arising from reinsurance transactions in the last few years.

2019

Class of Business	Motor	Fire & Property	Marine & Aviation	General Accident	CAR & Engineering	Oil & Energy	Total
Gross Premium Income	2,311,635	1,792,714	730,259	865,735	1,266,787	3,747,136	**10,714,266**
Reinsurance Cost	(9,079)	(667,378)	(373,669)	(585,002)	(397,743)	(2,751,689)	**(4,784,560)**
Reinsu1`rance Commission	-	295,365	97,176	106,216	3,933	11,146	**513,836**
Reinsurance Premium net of commission	(9,079)	(372,013)	(276,493)	(478,786)	(393,810)	(2,740,543)	**(4,270,724)**
Reinsurance Recoveries (Excl IBNR)	1,562	184,998	96,473	188,433	134,319	335,206	**940,991**
Total RI Profit/(Loss)	**(7,517)**	**(187,015)**	**(180,020)**	**(290,353)**	**(259,491)**	**(2,405,337)**	**(3,329,733)**

2020

Class of Business	Motor	Fire & Property	Marine & Aviation	General Accident	CAR & Engineering	Oil & Energy	Total
Gross Premium Income	1,645,933	2,000,885	937,380	864,745	1,774,859	4,060,286	**11,284,088**
Reinsurance Cost	-	(561,756)	(515,473)	(495,491)	(367,135)	(2,787,593)	**(4,727,448)**
Reinsurance Commission	-	87,282	64,548	54,569	16,317	481,200	**703,916**
Reinsurance Premium net of commission	-	(474,474)	(450,925)	(440,922)	(350,818)	(2,306,393)	**(4,023,532)**
Reinsurance Recoveries (Excl IBNR)	-	138,250	157,019	144,068	61,721	514,831	**1,015,889**
Total RI Profit/(Loss)	**-**	**(336,224)**	**(293,906)**	**(296,854)**	**(289,097)**	**(1,791,562)**	**(3,007,643)**

2021

Class of Business	Motor	Fire & Property	Marine & Aviation	General Accident	CAR & Engineering	Oil & Energy	Total
Gross Premium Income	2,662,024	1,698,677	1,117,043	920,397	1,781,675	4,308,955	**12,488,771**
Reinsurance Cost	-	(692,202)	(480,482)	(372,888)	(381,752)	(3,282,426)	**(5,209,750)**
Reinsurance Commission	-	547,678	79,393	207,309	49,098	43,286	**926,764**
Reinsurance Premium net of commission	-	(144,524)	(401,089)	(165,579)	(332,654)	(3,239,140)	**(4,282,986)**
Reinsurance Recoveries (Excl IBNR)	38,231	155,255	69,071	132,178	81,568	302,917	**779,220**
Total RI Profit/(Loss)	**(38,231)**	**(910,731)**	**(332,018)**	**(33,401)**	**(251,086)**	**(2,936,223)**	**(3,503,766)**

2022

Class of Business	Motor	Fire & Property	Marine & Aviation	General Accident	CAR & Engineering	Oil & Energy	Total
Gross Premium Income	2,184,356	2,423,366	1,125,138	1,019,668	1,547,586	6,667,825	**14,967,939**
Reinsurance Cost	-	(1,045,513)	(342,410)	(647,478)	(415,801)	(6,026,029)	**(8,477,231)**
Reinsurance Commission	-	527,616	149,684	387,644	137,407	78,175	**1,280,526**
Reinsurance Premium net of commission	-	(517,897)	(192,726)	(259,834)	(278,394)	(5,947,854)	**(7,196,705)**
Reinsurance Recoveries (Excl IBNR)	-	42,656	57,010	135,603	226,369	422,299	**883,937**
Total RI Profit/(Loss)	**-**	**(475,241)**	**(135,716)**	**(124,231)**	**(52,025)**	**(5,525,555)**	**(6,312,768)**

2.6.5 The reinsurance programs have been unprofitable, although this comment should be balanced with the benefit reinsurance provides of granting the company to underwrite bigger risks than it would ordinarily have been able to take on due to its limited capital resources. In particular, Oil & Energy has led to significant losses in all the years under review. We recommend the company should carry out a reinsurance optimization exercise with a view to minimizing losses whilst maintaining adequate protection in line with the company's risk appetite.

2.7 Stress Scenario for 2022 Result

2.7.1 We applied a 20% stress on the current ultimate loss ratio for each line of business to derive the stressed estimate of Outstanding claim reserves. This resulted in a total additional outstanding claim reserves of about ₦1,056million.

2.7.2 We illustrate the revised solvency margin for 2022 in the table below

Year	2022 -Stressed	2022
Technical Liabilities	6,338,022	5,281,685
Shareholders Fund (Free Assets)	9,287,511	10,443,848
Balance Sheet Solvency Ratio	**248%**	298%

2.7.3 The above table demonstrate that the solvency ratio is expected to remain healthy above 240% should the claims ratio increase by 20%.

3 Financial Condition as at 31st December 2022

3.1 Based on our discussions above we are of the view that;

- **The business is in a sound financial condition.** We have demonstrated that the solvency ratio exceeded 270% of technical liabilities on both the regulatory admissibility basis and IFRS balance sheet basis.

  We have further demonstrated that on a **stressed** basis, the balance sheet solvency ratio at the review date exceeds 240% of the liabilities.

3.2 We advise that the company should

- monitor expense ratio and improve investment income by developing a reviewable investment strategy

- to carry out a reinsurance optimization exercise with a view to minimizing losses whilst maintaining adequate protection.

- as the company prepares to recapitalize/merge, it is important to consider developing a quantitative Risk Appetite Statement incorporating its broad objective e.g.

  - Conducting your business in such a way that no more than 20% of your capital is at risk.
  - Probability of Profits being zero or worse <=5% (1 year in 20).
  - Risk Adjusted Returns on capital will always exceed 5% etc.
  - (Credit) Rating – Conduct your affairs to achieve/maintain an international credit rating of B etc.

4 New Business Plans

4.1 Business Plan Production

4.1.1 The company experienced an average premium growth rate of c8% p.a. over the 2018 – 2022 period. The company achieved a premium growth rate of 20% in 2022 and is estimating premium growth of 18% and 15% in 2023 and 2024 respectively. The new business mix is as per the business plan shared by the company.

The table below shows the assumed new business volumes and mix by line of business:

Line of Business	Gross Written Premiums - Business Plan			
	2023	%	2024	%
General Accident	1,800,000	10%	2,070,000	10%
Engineering	2,250,000	13%	2,587,500	13%
Fire	3,240,000	18%	3,726,000	18%
Marine	1,688,400	9%	1,941,660	9%
Motor	3,780,000	21%	4,347,000	21%
Oil & Gas	5,241,600	29%	6,027,840	29%
Total	**18,000,000**	**100%**	**20,700,000**	**100%**

4.1.2 The continued ambition to expand new business volumes could put pressure on management expenses in 2023 and 2024. The company experienced an average expense growth rate of c6% p.a. over the 2018 – 2022 period. The growth rate from 2021 to 2022 was c2%.

4.1.3 Therefore, for purposes of the projections, we have assumed expense increases per annum of 10%.

5 Solvency Projections

5.1 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 leads 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 comment accordingly.

5.2 Data and Assumptions

5.2.1 The most recent portfolio status and the corresponding valuation dataset forms the base of the projection.

5.2.2 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 is as detailed in Section 4.1.1 and was provided by the Company.

5.2.3 The unexpired premium reserves were projected for each line of business assuming risk would occur uniformly throughout the year and future portfolio would resemble the past written premiums.

5.2.4 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.

5.3 Projections results

5.3.1 The following results were obtained.

INCOME STATEMENT	**2022**	**2023**	**2024**
Gross Written Premium	15,228,771	18,000,000	20,700,000
Gross Premium Income	14,967,939	16,322,967	20,051,480
Reinsurance Cost	(8,026,651)	(7,001,088)	(8,051,252)
Net Premium Income	**6,941,288**	**9,321,878**	**12,000,229**
Commission income	883,937	1,058,159	1,402,489
Net Underwriting income	**7,825,225**	**10,380,038**	**13,402,718**
Gross claims incurred	(3,317,604)	(6,010,162)	(7,244,197)
Claims recoveries	943,510	1,878,475	2,163,237
Net claims incurred	**(2,374,094)**	**(4,131,687)**	**(5,080,960)**
Underwriting expenses	(2,795,489)	(3,403,147)	(3,913,619)
Total Underwriting Expenses	**(5,169,583)**	**(7,534,834)**	**(8,994,578)**
Investment income	300,506	491,938	548,418
Other operating income	369,874	369,874	369,874
Management Expenses	(2,097,778)	(2,307,556)	(2,769,067)
Profit before income tax	962,275	1,133,491	2,557,365
Income tax expenses	(123,505)	(145,480)	(639,341)
Profit for the year	**838,770**	**988,011**	**1,918,024**

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

ASSETS & LIABILITIES	2022	2023	2024
TOTAL ASSETS	17,432,677	20,605,491	23,632,081
Liabilities			
Technical liabilities	4,324,994	6,509,797	7,618,364
Trade payables	257,464	257,464	257,464
Borrowings	2,078,536	2,078,536	2,078,536
Other Liabilities	327,835	327,835	327,835
Total Liabilities	**6,988,829**	**9,173,632**	**10,282,199**
Share capital	5,756,305	5,756,305	5,756,305
Contingency reserves	4,146,418	4,686,418	5,307,418
Other reserves	395,353	395,353	395,353
Retained earnings/accumulated losses	145,772	593,783	1,890,806
Shareholder's equity	**10,443,848**	**11,431,859**	**13,349,882**
Total liabilities and shareholder's equity	**17,432,677**	**20,605,491**	**23,632,081**

The projected solvency ratios are as shown below.

Year	2022	2023	2024
Technical Liabilities	4,324,994	6,509,797	7,618,364
Shareholders Fund (Free Assets)	10,443,848	11,431,859	13,349,882
Solvency Margin	**341%**	**276%**	**275%**

5.3.2 Based on our assumptions, there is an expectation of increased profitability in 2023 and 2024 whilst maintaining adequate solvency coverage in both years. This should mean a higher chance of adequate capital to meet the company liabilities as and when due.

5.3.3 We performed projections assuming an absolute 20% increase in loss ratio and the following results were obtained.

INCOME STATEMENT	2022	2023	2024
Gross Written Premium	15,228,771	18,000,000	20,700,000
Gross Premium Income	14,967,939	16,322,967	20,051,480
Reinsurance Cost	(8,026,651)	(7,001,088)	(8,051,252)
Net Premium Income	**6,941,288**	**9,321,878**	**12,000,229**
Commission income	883,937	1,058,159	1,402,489
Net Underwriting income	**7,825,225**	**10,380,038**	**13,402,718**
Gross claims incurred	(3,317,604)	(7,212,194)	(8,693,036)
Claims recoveries	943,510	2,254,170	2,595,884
Net claims incurred	**(2,374,094)**	**(4,958,024)**	**(6,097,152)**
Underwriting expenses	(2,795,489)	(3,403,147)	(3,913,619)
Total Underwriting Expenses	**(5,169,583)**	**(8,361,171)**	**(10,010,770)**
Investment income	300,506	491,938	548,418
Other operating income	369,874	369,874	369,874
Management Expenses	(2,097,778)	(2,307,556)	(2,769,067)
Profit before income tax	962,275	307,154	1,541,173
Income tax expenses	(123,505)	(39,422)	(385,293)
Profit for the year	**838,770**	**267,731**	**1,155,880**

ASSETS & LIABILITIES	2022	2023	2024
TOTAL ASSETS	17,432,677	20,322,478	22,678,934
Liabilities			
Technical liabilities	4,324,994	6,947,063	8,147,640
Trade payables	257,464	257,464	257,464
Borrowings	2,078,536	2,078,536	2,078,536
Other Liabilities	327,835	327,835	327,835
Total Liabilities	**6,988,829**	**9,610,898**	**10,811,475**
Share capital	5,756,305	5,756,305	5,756,305
Contingency reserves	4,146,418	4,686,418	5,307,418
Other reserves	395,353	395,353	395,353
Retained earnings/accumulated losses	145,772	(126,497)	408,383
Shareholder's equity	10,443,848	10,711,579	11,867,459
Total liabilities and shareholder's equity	**17,432,677**	**20,322,478**	**22,678,934**

Year	2022	2023	2024
Technical Liabilities	4,324,994	6,947,063	8,147,640
Shareholders Fund (Free Assets)	10,443,848	10,711,579	11,867,459
Solvency Margin	**341%**	**254%**	**246%**

6 Economic Capital

6.1 The technical figure (technical liabilities,,reinsurance , assets, etc.) estimated for balance sheets 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.

6.2 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 on the corresponding risk capital, called **ECONOMIC CAPITAL**.

6.3 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.

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

6.5 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 20 year event) are shown in appendix 5 of the report.

6.6 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 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 is given in appendix 6 of the report.

6.7 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.

6.8 The calculations were based on same data used to prepare the IFRS valuation as at 31 December 2022 and asset information shown in section 2.3 of this report.

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

Risk Type		Capital Requirement (N)
Non-Life Underwriting Risk	Reserve Risk	1,923,129,017
	Premium Risk	181,773,064
	Catastrophe Risk	125,078,515
	Lapse Risk	-
	SCR_{nl} Pre-Div	2,229,980,595
	SCR_{nl} Div Credit	688,520,095
	SCR_{nl} Post Div	**1,541,460,500**
Market Risk	Interest Rate Risk	-
	Equity Risk	-
	Property Risk	-
	Spread Risk	-
	Currency Risk	468,364,275
	Concentration Risk	-
	SCR_{mkt} Pre-Div	468,364,275
	SCR_{mkt} Div Credit	-
	SCR_{mkt} Post Div	**468,364,275**
Counterparty Default Risk	Reinsurance credit	34,791,233
	Investment credit & Debtors	253,940,381
	SCR_{def} Pre-Div	288,731,614
	SCR_{def} Div Credit	8,803,325
	SCR_{def} Post Div	**279,928,289**
Undiversified BSCR		2,289,753,064
Diversification Credit		410,428,575
Basic SCR		1,879,324,488
Operational Risk		481,717,238
Final Economic capital		**2,298,209,043**
Shareholders' Funds		**10,443,848,000**
% of Economic Capital		**22%**

6.10 As shown in the table above, the total **Economic Capital** required in connection with the business profile at 31st December 2022 was ₦2.30billion. This represents 22% of the total shareholder funds and implies that the company was well capitalized at the review date to meet liabilities (in respect of business on the books) as and at when they arise.

7 Conclusion and Recommendations

7.1 The company is in a sound Financial Condition as at report date.

We estimate that the economic/risk-based capital required to support the business at 31st December 2022 as ₦2.30billion. This is about 77% of the current minimum statutory requirement of ₦3billion. The business however has Shareholder Funds of ₦10.4billion or 452% the needed Risk Based Capital.

Hence, the business is well capitalized and is likely to meet all obligations as when due.

7.2 The company's Capital Adequacy Ratio (CAR) has increased from 273% in 2021 to 299% in 2022. However, the recent recapitalization move by the insurance regulator requiring a minimum capital requirement of ₦10bn, this still implies that the company requires at least ₦1.1bn capital injection to meet up with the new capital requirements.

7.3 The company's reinsurance program has been unprofitable, resulting in consistent significant losses over the review period. We recommend a reinsurance optimization exercise be carried out with a view to minimize losses whilst maintaining adequate protection in line with the company's risk appetite. A quick execution plan could be to negotiate profit commission.

7.4 The investment income has been low implying the company's current asset mix is not generating good returns. We recommend the company articulates a reviewable investment policy/strategy, indicating asset allocation mix and selection criteria, for each of the policyholders and shareholder funds, aimed at enhancing investment returns and increased liquidity to readily meet policyholder liability.

7.5 We thank you for the opportunity to perform a financial condition assessment for the company leading to the Production of this report. We hope you will find the report helpful.

7.6 We would be happy to discuss the results of these findings and any aspects of the report that might require clarification.

Yours sincerely,

Jonathan Ben Phiri
Fellow, Institute and Faculty of Actuaries, UK

For: Logic Professional Services.

APPENDIX 1 – RELIANCE & LIMITATION

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 Sovereign Trust Plc. The liability information used was the same as that used in the IFRS actuarial valuation. Where stated in this report we have reviewed this data for reasonableness.

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.

Except with the consent of Logic Professional Services, the report and any written or oral information or advice provided by Logic Professional Services must not be reproduced, distributed or communicated in whole or in part to any other person or relied upon by any other person. The report may be distributed to a third party where there is a legal requirement to do so.

The report may be distributed to the Senior Management of Sovereign Trust Plc 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.

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

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

APPENDIX 2 – REINSURANCE TREATY PROGRAM

	CLASS	RETENTION	LINE	TREATY CAPACITY NGN	UNDERWRITING CAPACITY NGN
1	**FIRE**				
	MINIMUM	150,000,000	20	3,000,000,000	3,150,000,000
	MAXIMUM	250,000,000	20	5,000,000,000	5,250,000,000
	TERRORISM (FIRE)	200,000,000	3	600,000,000	800,000,000
2	**FIRE WORKING EXCESS OF LOSS**	125,000,000		125,000,000	250,000,000
3	**FIRE CAT EXCESS OF LOSS**	375,000,000		1,125,000,000	1,500,000,000
4	**MARINE CARGO**	150,000,000	24	3,600,000,000	3,750,000,000
5	**MARINE HULL**	50,000,000	25	1,250,000,000	1,300,000,000
6	**ENGINEERING**				
(a)	**Contractors' All Risk Insurance**				
	MINIMUM	30,000,000	25	750,000,000	780,000,000
	MAXIMUM	150,000,000	25	3,750,000,000	3,900,000,000
	TERRORISM	100,000,000	3	300,000,000	400,000,000
(b)	**Erection All Risk/Machinery Break-**				
	down/Plant All Risk Insurance				
	MINIMUM	100,000,000	25	2,500,000,000	2,600,000,000
	MAXIMUM	150,000,000	25	3,750,000,000	3,900,000,000
(c)	**Computer All Risk Insurance**				
	MINIMUM	48,000,000	25	1,200,000,000	1,248,000,000
	MAXIMUM	150,000,000	25	3,750,000,000	3,900,000,000
(d)	**Electronic Equipment & Low Voltage/**				
	Boiler & Pressure Vessels Insurance				
	MINIMUM	50,000,000	25	1,250,000,000	1,300,000,000
	MAXIMUM	150,000,000	25	3,750,000,000	3,900,000,000
(e)	**Terrorism**	100,000,000	3	300,000,000	400,000,000
7	**BOND QUOTA SHARE**	180,000,000	60 /40	120,000,000	300,000,000
8	**GENERAL ACCIDENT**				
(a)	**Burglary**				
	(Private Premises)	80,000,000	35	2,800,000,000	2,880,000,000
	(Business Premises)	100,000,000	35	3,500,000,000	3,600,000,000
(b)	**Money**				
	(Cash In Transit)	65,000,000	35	2,275,000,000	2,340,000,000
	(Cash In Safe)	80,000,000	35	2,800,000,000	2,880,000,000
(c)	**Goods in Transit**				
	(Own Goods)	37,500,000	35	1,312,500,000	1,350,000,000
	(General Goods)	75,000,000	35	2,625,000,000	2,700,000,000
(d)	**All Risk**	55,000,000	35	1,925,000,000	1,980,000,000
(e)	**Fidelity Guarantee**				
	(Per Person)	45,000,000	35	1,575,000,000	1,620,000,000
	(Per Firm)	100,000,000	35	3,500,000,000	3,600,000,000
(f)	**Personal Accident**				
	(Per Person)	45,000,000	35	1,575,000,000	1,620,000,000
	(Per Firm)	100,000,000	35	3,500,000,000	3,600,000,000
(g)	**Professional Indemnity**				
	(Per Person)	45,000,000	35	1,575,000,000	1,620,000,000
	(Per Firm)	100,000,000	35	3,500,000,000	3,600,000,000
(h)	**Public Liability**	100,000,000	20	2,000,000,000	2,100,000,000
(i)	**General Third Party Liability**	100,000,000	10	1,000,000,000	1,100,000,000
(j)	**Director's and Officer's Liability**	100,000,000	3	300,000,000	400,000,000
(k)	**Product Liability**	100,000,000	10	1,000,000,000	1,100,000,000
(l)	**Workmen's Compensation/Employers Liability**	100,000,000	20	2,000,000,000	2,100,000,000
9	**GROUP PERSONAL ACCIDENT CAT EXCESS OF**	100,000,000		400,000,000	500,000,000
10	**POLITICAL VIOLENCE, TERRORISM AND**	250,000	4	1,000,000	1,250,000
		95,000,000	4	380,000,000	475,000,000
11	**AVIATION**	95,000,000		665,000,000	760,000,000
	HULL FIXED WING	250,000		1,750,000	2,000,000
		95,000,000		285,000,000	380,000,000
	HULL ROTOR WING	250,000		750,000	1,000,000
		95,000,000		3,705,000,000	380,000,000
	LIABILTY	250,000		9,750,000	10,000,000

APPENDIX 3A – REVENUE ACCOUNTS - BASE SCENARIO

2023 PROJECTIONS ASSUMING FULL BUSINESS PLAN								
	2023							
REVENUE & EXPENSES	Motor	Fire & Property	Marine & Aviation	General Accident	CAR & Engineering	Oil & Energy	Total	2022
INCOME								
Gross Written Premium	3,780,000	3,240,000	1,688,400	1,800,000	2,250,000	5,241,600	18,000,000	15,228,771
Gross Earned Premium	2,860,834	2,911,538	1,556,356	1,685,951	1,865,816	5,442,473	16,322,967	14,967,939
Reinsurance Cost	-	(1,125,015)	(707,033)	(903,698)	(512,782)	(3,752,561)	(7,001,088)	(8,026,651)
Net Premium Income	2,860,834	1,786,523	849,323	782,253	1,353,034	1,689,912	9,321,878	6,941,288
Commission income	141,244	220,191	122,377	172,821	80,946	320,580	1,058,159	883,937
Net Underwriting income	3,002,078	2,006,714	971,700	955,074	1,433,980	2,010,492	10,380,038	7,825,225
EXPENSES								
Gross claims incurred	(918,260)	(1,463,514)	(356,742)	(829,793)	(130,080)	(2,311,774)	(6,010,162)	(3,317,604)
Claims recoveries	-	510,458	106,353	291,529	29,730	940,405	1,878,475	943,510
Net claims incurred	(918,260)	(953,056)	(250,389)	(538,263)	(100,350)	(1,371,369)	(4,131,687)	(2,374,094)
Underwriting expenses								
Total Underwriting Expenses	(892,638)	(838,734)	(553,430)	(191,246)	(644,857)	(282,241)	(3,403,147)	(2,795,489)
Total Expenses	(1,810,898)	(1,791,790)	(803,819)	(729,510)	(745,207)	(1,653,610)	(7,534,834)	(5,169,583)
Underwriting profit	1,191,180	214,924	167,881	225,564	688,773	356,882	2,845,204	2,655,642

2024 PROJECTIONS ASSUMINGFULL BUSINESS PLAN								
	2024							
REVENUE & EXPENSES	Motor	Fire & Property	Marine & Aviation	General Accident	CAR & Engineering	Oil & Energy	Total	2023
INCOME								
Gross Written Premium	4,347,000	3,726,000	1,941,660	2,070,000	2,587,500	6,027,840	20,700,000	18,000,000
Gross Earned Premium	4,181,347	3,584,012	1,900,806	2,013,279	2,484,735	5,887,302	20,051,480	16,322,967
Reinsurance Cost	-	(1,293,767)	(813,088)	(1,039,253)	(589,699)	(4,315,445)	(8,051,252)	(7,001,088)
Net Premium Income	4,181,347	2,290,245	1,087,717	974,026	1,895,036	1,571,857	12,000,229	9,321,878
Commission income	-	306,951	163,847	319,135	129,158	483,399	1,402,489	1,058,159
Net Underwriting income	4,181,347	2,597,196	1,251,564	1,293,161	2,024,194	2,055,256	13,402,718	10,380,038
EXPENSES								
Gross claims incurred	(1,342,113)	(1,801,540)	(435,695)	(990,897)	(173,230)	(2,500,722)	(7,244,197)	(6,010,162)
Claims recoveries	-	628,358	129,890	348,130	39,593	1,017,267	2,163,237	1,878,475
Net claims incurred	(1,342,113)	(1,173,182)	(305,805)	(642,768)	(133,637)	(1,483,455)	(5,080,960)	(4,131,687)
Underwriting expenses								
Total Underwriting Expenses	(1,026,534)	(964,544)	(636,444)	(219,933)	(741,586)	(324,577)	(3,913,619)	(3,403,147)
Total Expenses	(2,368,647)	(2,137,726)	(942,249)	(862,701)	(875,223)	(1,808,032)	(8,994,578)	(7,534,834)
Underwriting profit	1,812,700	459,470	309,315	430,460	1,148,971	247,224	4,408,139	2,845,204

APPENDIX 3B – REVENUE ACCOUNTS - 20% INCREASE IN LOSS RATIO

2023 PROJECTIONS ASSUMING FULL BUSINESS PLAN								
	2023							
REVENUE & EXPENSES	**Motor**	**Fire & Property**	**Marine & Aviation**	**General Accident**	**CAR & Engineering**	**Oil & Energy**	**Total**	**2022**
INCOME								
Gross Written Premium	3,780,000	3,240,000	1,688,400	1,800,000	2,250,000	5,241,600	18,000,000	15,228,771
Gross Earned Premium	2,860,834	2,911,538	1,556,356	1,685,951	1,865,816	5,442,473	16,322,967	14,967,939
Reinsurance Cost	-	(1,125,015)	(707,033)	(903,698)	(512,782)	(3,752,561)	(7,001,088)	(8,026,651)
Net Premium Income	2,860,834	1,786,523	849,323	782,253	1,353,034	1,689,912	9,321,878	6,941,288
Commission income	141,244	220,191	122,377	172,821	80,946	320,580	1,058,159	883,937
Net Underwriting income	3,002,078	2,006,714	971,700	955,074	1,433,980	2,010,492	10,380,038	7,825,225
EXPENSES								
Gross claims incurred	(1,101,912)	(1,756,217)	(428,090)	(995,751)	(156,096)	(2,774,129)	(7,212,194)	(3,317,604)
Claims recoveries	-	612,550	127,623	349,835	35,677	1,128,486	2,254,170	943,510
Net claims incurred	(1,101,912)	(1,143,667)	(300,467)	(645,916)	(120,419)	(1,645,643)	(4,958,024)	(2,374,094)
Underwriting expenses								
Total Underwriting Expenses	(892,638)	(838,734)	(553,430)	(191,246)	(644,857)	(282,241)	(3,403,147)	(2,795,489)
Total Expenses	(1,994,550)	(1,982,401)	(853,897)	(837,162)	(765,277)	(1,927,884)	(8,361,171)	(5,169,583)
Underwriting profit	1,007,528	24,313	117,803	117,911	668,703	82,608	2,018,866	2,655,642

2024 PROJECTIONS ASSUMING FULL BUSINESS PLAN								
	2024							
REVENUE & EXPENSES	**Motor**	**Fire & Property**	**Marine & Aviation**	**General Accident**	**CAR & Engineering**	**Oil & Energy**	**Total**	**2023**
INCOME								
Gross Written Premium	4,347,000	3,726,000	1,941,660	2,070,000	2,587,500	6,027,840	20,700,000	18,000,000
Gross Earned Premium	4,181,347	3,584,012	1,900,806	2,013,279	2,484,735	5,887,302	20,051,480	16,322,967
Reinsurance Cost	-	(1,293,767)	(813,088)	(1,039,253)	(589,699)	(4,315,445)	(8,051,252)	(7,001,088)
Net Premium Income	4,181,347	2,290,245	1,087,717	974,026	1,895,036	1,571,857	12,000,229	9,321,878
Commission income	-	306,951	163,847	319,135	129,158	483,399	1,402,489	1,058,159
Net Underwriting income	4,181,347	2,597,196	1,251,564	1,293,161	2,024,194	2,055,256	13,402,718	10,380,038
EXPENSES								
Gross claims incurred	(1,610,536)	(2,161,848)	(522,834)	(1,189,077)	(207,876)	(3,000,866)	(8,693,036)	(7,212,194)
Claims recoveries	-	754,029	155,868	417,756	47,511	1,220,720	2,595,884	2,254,170
Net claims incurred	(1,610,536)	(1,407,818)	(366,966)	(771,321)	(160,364)	(1,780,146)	(6,097,152)	(4,958,024)
Underwriting expenses								
Total Underwriting Expenses	(1,026,534)	(964,544)	(636,444)	(219,933)	(741,586)	(324,577)	(3,913,619)	(3,403,147)
Total Expenses	(2,637,070)	(2,372,363)	(1,003,410)	(991,254)	(901,950)	(2,104,723)	(10,010,770)	(8,361,171)
Underwriting profit	1,544,277	224,834	248,154	301,907	1,122,243	(49,467)	3,391,947	2,018,866

Appendix 5: Economic Capital Results at 95% Confidence Level

Should we lower our confidence level to 95%, the total economic capital requirement reduces to ₦1.72billion which represents c.16.5% of the shareholder funds as December 31 2022.

Risk Type		Capital Requirement (N)
Non-Life Underwriting Risk	Reserve Risk	1,321,740,711
	Premium Risk	116,075,271
	Catastrophe Risk	125,078,515
	Lapse Risk	-
	SCR_{nl} Pre-Div	1,556,441,330
	SCR_{nl} Div Credit	487,645,058
	SCR_{nl} Post Div	**1,068,780,677**
Market Risk	Interest Rate Risk	-
	Equity Risk	-
	Property Risk	**-**
	Spread Risk	-
	Currency Risk	228,978,090
	Concentration Risk	-
	SCR_{mkt} Pre-Div	228,978,090
	SCR_{mkt} Div Credit	-
	SCR_{mkt} Post Div	**228,978,090**
Counterparty Default Risk	Reinsurance credit	34,791,233
	Investment credit & Debtors	253,940,381
	SCR_{def} Pre-Div	288,731,614
	SCR_{def} Div Credit	-
	SCR_{def} Post Div	**279,928,289**
Undiversified BSCR		1,581,580,025
Diversification Credit		264,097,811
Basic Economic Capital		1,315,484,893
Operational Risk		418,884,555

Final Economic Capital	**1,723,531,740**
Shareholders'Funds	**10,443,848,000**
Economic Capital as a % of SF	**16.5%**

Appendix 6: Economic Capital Methodology & Stress Level Derivation.

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

6 MARKET RISKS

6.1.1 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.

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

6.1.3 Credit spread and liquidity risks have not been explicitly calculated for the following reasons:

- ✓ Credit spread – the company has no corporate bond holdings as part of assets backing technical provisions and hence no credit risk exposure.
- ✓ Liquidity risk – this is a difficult risk to quantify within the economic calculations. The Company is recommended to ensure that a robust Liquidity management policy is in place in order to be able to monitor this risk.

6.1.4 Concentration and foreign currency risks were also considered.

- ✓ Concentration risk – the Company is diversified in its investments e.g. equities by sector; for cash holdings, there is limited exposure for the Company in terms of equity holdings in the banks where Cash is held. For this purpose, this risk was considered not significant and not modelled explicitly
- ✓ Foreign currency risk - the company has some exposure to currency risk as some of its major line of business e.g. Oil & Gas have potential liabilities that are dollar dominated. However, we note from the financial statements that the company has equivalent assets matching the liabilities.

Also, the company has a foreign loan on which constitute a major currency risk.

6.1.5 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

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

Asset class	Stress level @ 95%	Stress level @ 99.5%
Equity	29.1%	41.5%
Property	30.6%	39.5%
Interest rate	24%	35%
Currency	29%	13%

6.1.7 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 also benchmarking against the Solvency II widely used stress levels.

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

6.1.9 **Equity risk**

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

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

6.1.9.3 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.

6.1.9.4 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% and 41% for confidence levels of 95% and 99.5% respectively.

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

6.1.9.6 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.

6.1.10 **Property risk**

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

6.1.10.2 The main downside risk is the fall in property values.

6.1.10.3 The local market level of stress for this risk was difficult to obtain given the non-existence of property indices or well defined historical property values in the local market.

6.1.10.4 In order to derive an appropriate stress, we assumed the property returns would follow closely equity returns but slightly better and less risky. This is a unique feature of the local market. The recent past has shown m positive performance of property investments whilst equity returns have been negative in some instances
.

6.1.10.5 We then assumed annual property returns of 15% with standard deviation of 9.5%. Assuming a normal distribution of returns, we then calculated the relevant stress levelsat95%, 99.5%, 99.75%and99.95%confidencelevelsasshownin the table 3 above respectively

6.1.10.6 To support the notion of better property returns is the fact that the company is invested in properties mainly in the Lagos State. Property values have been on an increase over the last 20 years, so it is hoped that the trend will continue in the near to medium-term. However, this assumption will continue to be monitored in the future computation of economic capital.

6.1.11 **Interest Rate risk**

6.1.11.1 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.

6.1.11.2 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.

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

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

6.1.11.5 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.

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

6.1.11.7 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}

6.1.12 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-the risk (i could be any of the three risks)

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

6.1.13 the correlation matrix used is shown in Appendix 7

6.1.14 **Non-Life Insurance risks**

6.1.14.1 The non-life insurance risks modelled were:

- Reserving Risk
- Premium Risk
- Catastrophe Risk

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 fitted a lognormal distribution (best fit) to the historical link ratios for each claims development year
- For each accident year, claims were projected to the ultimate position using a factor derived from the parameters of the fitted model and randomly generated numbers
- We then used the bootstrap approach to derive a distribution of ultimate claims
- Reserve capital is the difference between the 95^{th}-percentile of the distribution and the 50^{th} -percentile (Best estimate)
- Because the volume of data available was not credible enough for the bootstrap approach, capital values for Oil & Gas were calculated using the expected ultimate loss ratio method. The VAR approach was used in calculating the required capital at various confidence levels.

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 normal distribution was fit (which was the best fit) to the deviations
- The VaGNYHFCR4EQFV45R5DER approach was then used to compute the capital requirement at 95% confidence level.

6.1.14.10 **Catastrophe risk**

6.1.14.11 this is Catastrophe for the general insurance business.

6.1.14.12 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.

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

6.1.14.14 the catastrophe risk methodology was therefore as follows:

- The 2018 loss ratios were increased by 500% for all lines of business to resemble a catastrophic-like event
- A 0.5% probability of occurrence was applied to determine the final capital requirement.

6.2 CREDIT RISK

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

6.2.2 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.

6.2.3 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.

6.2.4 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 ratings 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	0.01%
AA+	0.01%
AA	0.02%
AA-	0.03%
A+	0.06%
A	0.09%
A-	0.11%
BBB+	0.16%
BBB	0.22%
BBB-	0.39%
BB+	0.54%
BB	0.81%
BB-	1.39%
B+	2.54%
B	5.37%
B-	8.72%
Unrated	26.53%

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

6.2.6 The formula used was: Estimated exposure x Probability of Default.

6.3 <u>OPERATIONAL RISK</u>

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

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

6.3.3 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.

6.3.4 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.

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

$$C_p = \text{Min}\ \{0.3 * CR_{OP},\ BOp\} + 0.25 \times Exp_{nl}$$

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

CR_{op} is the preliminary capital required before allowing operational risk and, for the risk requirements it is defined as:

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

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

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

Where

$$Op_{premiums} = 0.04 \times Earn_{nl} + Max\ \{0, 0.04 \times [Earn_{nl} - 1.1 \times pEarn_{nl}]\}$$

and $Op_{provisions} = 0.0045 \times Max\ \{0, Tp_{nl}\}$

$Earn_{nl}$ 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_l are the technical provisions

6.3.6 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 7 – CORRELATION MATRICES

Correlations for Market risks have been derived using actuarial judgment 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.

<u>Market risk correlations</u>

	Parameters					
Corrij	Mktint	Mkteq	Mktprop	Mktsp	Mktconc	Mktfx
Mktint	100%	0%	0%	0%	0%	25%
Mkteq	0	100%	25%		0%	25%
Mktpro	%		75%	25%	0%	25%
p	0	100%	50%	75%	0%	25%
Mktsp		0%	0%	0%	100%	
Mktcon		0% 25%	25%	25%	0%	0%

<u>Comments:</u>

- Equity vs Property – the local stock and property markets have seen low correlations.
- The drops 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.