



BERMUDA MONETARY AUTHORITY

2010 BSCR ANALYSIS REPORT

FOR

CLASS 4 AND 3B (RE)INSURERS

DECEMBER 2011

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2010 BSCR ANALYSIS REPORT FOR CLASS 4 AND 3B (RE)INSURERS

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0. Introduction

This publication reviews the financial results of Class 4 and 3B (re)insurers (the “(re)insurers” or the “market”) for the 2010 financial year based on the Capital and Solvency Returns submitted to the Authority. It also includes financial results of Class 4 (re)insurers over the previous three years for comparison purposes.

The Class 4 and 3B (re)insurers are supervised under the Insurance Act 1978, the Insurance (Prudential Standards) (Class 4 and 3B Solvency Requirement) Rules 2008 (the “Rules”), the Insurance Returns and Solvency Regulations 1980 and the Insurance Accounts Regulations 1980.

This publication includes a review of the following key areas:

- I. Risk distribution based on the Bermuda Solvency Capital Requirement (“BSCR”) model;
- II. Capitalisation;
- III. Underwriting performance;
- IV. Catastrophe risk and stress scenarios;
- V. Investment performance;
- VI. Liquidity; and
- VII. Operational risk based on the Commercial Insurer Risk Assessment (“CIRA”) framework.

Appendix A provides definitions of financial ratios included in the main text.

Appendix B outlines the prescribed economic and underwriting stress scenarios as well as the exposure territories.

Appendix C provides the statutory lines of business.

Any feedback or comments on this publication should be sent to riskanalytics@bma.bm.

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Comparison with other BMA publications

This analysis has been provided as a proxy to facilitate benchmarking within the various (re)insurance sectors.

This publication also includes information obtained or derived from a variety of publicly available sources. The Authority has not sought to establish the reliability of these sources or verified such information and consequently, does not give any representation or warranty of any kind (whether expressed or implied) as to the accuracy or completeness of this publication. This publication is for general information only and does not constitute investment or any other advice. Accordingly, it is not intended to form the basis of any investment decisions and does not absolve any third-party from conducting its own due diligence in order to verify its contents.

1 Executive Summary

1.1 Overview

This report provides insight into the financial performance of Class 4 and 3B (re)insurers in Bermuda for the 2010 financial year end with prior year comparison (three years). The results are based on the annual returns submitted to the Authority comprising of:

1. Capital and Solvency Return which includes the BSCR, the Authority's risk-based capital model and related supporting schedules;
2. Statutory Financial Return; and
3. General purpose financial statements for the relevant year.

In this report, the 2010 data includes both Class 4 and 3B (re)insurers while prior years' data relates only to Class 4 (re)insurers; supervision of Class 3B (re)insurers under the Rules became effective on 31st December 2009.

As a result of combining Class 4 and 3B (re)insurers, certain ratios in 2010 may reflect significant movement from the prior year. Nevertheless, the overall risk profiles for Class 4 and 3B (re)insurers are generally perceived to be consistent.

Section 1 provides the overall 2010 market highlights focusing on the following key areas:

- Risk distribution – provides the (re)insurers' risk profiles (based on capital allocation by risk areas: underwriting risk, market risk, credit risk, and operational risk) as reflected by the BSCR model;
- Capitalisation – provides the (re)insurers' overall capital levels as reflected by the ECR ratios over the last four years. It also provides other key capital ratios and trends over the same period;
- Underwriting performance – highlights key underwriting ratios and trends and the mix of business by lines of business (“LOB”) (catastrophe, property and casualty LOB) over the last four years;
- Catastrophe risk and stress scenarios – highlights catastrophe risk exposure and a review of the various underwriting and economic scenarios, including the worst case scenarios;
- Investment performance – highlights key investment ratios and trends, and overall composition of the fixed income investment portfolio by security type (government, investment grade, mortgage backed, mutual funds and non-rated securities) over the period;

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- Liquidity – highlights key liquidity ratios and trends over the period; and
- Operational risk – highlights the results of the CIRA as completed by the (re)insurers and compares the 2010 results to prior years.

Section 2 provides detailed market trends and developments over the last four years which supports the highlights summarised under Section 1. This section also provides similar performance indicators for the three primary sub-sectors across the Class 4 and 3B (re)insurers over the same period.

Section 3 presents the results of a comprehensive analysis of vulnerabilities in response to recent economic and capital market developments that can affect the supervisory assessment of individual and system-wide risks. Given Bermuda's extensive linkages to global trade and finance, particularly with the United States, this approach forms an essential element of the BMA's macro-prudential agenda aimed at assessing the scale and nature of potential risks to the solvency and liquidity of licensed entities and the possible impact that these may have on financial stability.

Appendix A provides definitions of financial ratios included in the main text while Appendix B outlines the prescribed economic and underwriting stress scenarios as well as the exposure territories.

1.2 Market Highlights

The following is a summary review of the findings:

Risk Distribution:

Although there are notable differences in the risk profiles when comparing the property, property and casualty, and casualty sectors, underwriting risk¹ across the market remains the largest risk component in 2010. Market risk² and credit risk charges remained largely unchanged while operational risk has declined suggesting continued improvements of the (re)insurers' corporate governance and risk management functions.

Capitalisation:

The average ECR ratio marginally increased in 2010 from 273% in 2009 to 274%. The increase resulted from a 17% increase in average capital and surplus, largely offset by an increase in capital requirements arising from higher reserving levels.

Underwriting performance:

The overall average net premiums written in 2010 increased by 7% reversing a 3% decline registered in 2009. This was reflected in the net reserves which revealed an average increase of 29%, higher than 2009's 11%. Overall, the market maintained its underwriting profitability in 2010 with an average combined ratio of 87% (68% in 2009) despite higher catastrophe-related losses experienced during the year.

Catastrophe risk and stress scenarios:

Catastrophe risk remains a major exposure for the Bermuda market accounting for about 26% of the market's BSCR prior to covariance adjustment (34% in 2009). Pinellas Hurricane, Northeast Hurricane and Gulf Windstorm (onshore) remain to be the largest threat to the (re)insurers' solvency. Under the worst-case scenarios, certain (re)insurers may breach their ECR. Consequently, the Authority continued to closely monitor the performance of these (re)insurers especially with the frequency of major catastrophe events increasing in 2011.

¹ Underwriting risk includes: premium risk, reserve risk and catastrophe risk.

² Market risk includes: fixed income investment risk, equity investment risk, and interest rate/liquidity risk.

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Investment performance:

(Re)insurers' balance sheet continues to constitute a significant portion of investments, although total investments (quoted and unquoted) has decreased from 65% in 2009 to 59% of total assets in 2010. However, overall fixed income investment portfolio appears to be shifting toward medium and highly-rated securities. Largely due to weaker financial conditions prevailing during the year, overall return on investments declined to 8% in 2010 from 10% in 2009.

Liquidity risk:

The overall liquidity position for the (re)insurers appears to have improved in 2010 compared to 2009 with the various liquidity ratios showing an upward trend. Overall, the (re)insurers continue to reflect availability of sufficient liquid assets to support their obligations including catastrophe-related obligations as represented by the net PML.

Risk outlook:

The Authority reviewed key trends in the Bermuda market against the background of the current economic and capital market conditions in order to inform the forward-looking assessment of individual and system-wide vulnerabilities. Several factors that contribute to these vulnerabilities (with possible knock-on effects on the sector's solvency and liquidity) have been identified in this report:

- Downside risks to global growth remain elevated in many advanced economies (and its implications for the financial sector) given the scant progress in addressing fiscal vulnerabilities in the euro area periphery. The post-crisis recovery, especially in the United States, remains tenuous and heavily dependent on the decisions regarding monetary policy and fiscal prudence. Economic activity could become markedly more volatile if sovereign vulnerabilities and remaining pockets of financial sector weaknesses were to further delay the timely exit from extraordinarily accommodative monetary policy.
- Rising fiscal challenges in the European periphery remain an area of acute concern. Sovereign exposures in investment portfolios are sizable, and the prospect of higher inflation risk and continued downside risks to the U.S. residential and commercial real estate sectors weigh on the underwriting risk of property-casualty insurance, which dominate the Bermuda market. Insurance companies are resilient against current market stresses affecting the

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valuation of their holdings of euro area sovereign debt. However, over the short- and medium-term, insurers could face considerable haircut losses if the largest euro area economies (France, Germany) and/or the United States were affected by a renewed escalation of sovereign risk.

- While the fundamentals for the P&C insurance industry appear to still be strong, there are potential challenges over the short-term. Insurers' profitability is likely to come under pressure as real premium growth has been insufficient against the background of sluggish economic recovery and continued monetary easing.
- Insurance companies might face greater difficulties in their asset allocation. Lower risk-weightings for highly-rated assets give even greater prominence to sovereign exposures, which might engender a developing "search for yield" in the remaining portion of the investment portfolio as firms struggle to realise sufficient returns in a continued low-interest rate environment.³ Such investment would be in riskier assets that offer disproportionately higher return relative to rising capital charges—potentially building financial imbalances for the future. Also the return of short-term volatility fixed income markets could upset current cost-to-carry interest rate strategies.

³ The Federal Reserve in the United States has determined to continue the low interest rate environment through 2013.

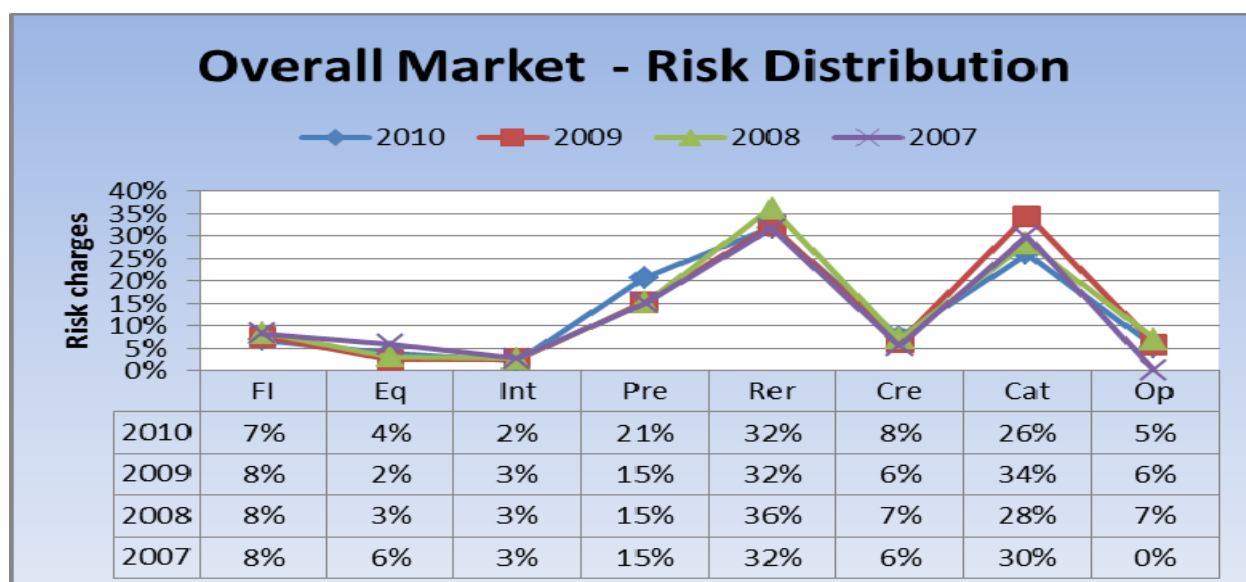
2 Trends and Developments

2.1 Market Overview

Risk Distribution:

Below is a summary of capital charges per risk category over the last four years generated by the BSCR model. This provides a broad view of the overall risk profile for the Bermuda Class 4 and 3B (re)insurers.

Exhibit 2.1: The (re)insurers' average BSCR risk charge distribution⁴



NOTE: The operational risk capital charge was first introduced in 2008 through the Commercial Insurer Risk Assessment framework embedded in the BSCR model. In Exhibit 2.1 above, the non-operational risk percentages equate to 100%. The operational risk charge is loaded on top of the cumulative non-operational risk capital charges.

Based on Exhibit 2.1 above, underwriting risk, which comprises of premium risk, reserve risk and catastrophe risk remains the largest risk component for the overall market, accounting for about 79% (81% in 2009) of the BSCR prior to covariance adjustment (the undiversified capital requirement under the BSCR).

Market risk, which comprises of fixed income investment risk, equity investment risk and interest rate/liquidity risk has remained relatively consistent over the years and accounted for 13% of the BSCR prior to covariance adjustment in 2010 (13% in 2009). Similarly, credit risk capital charge has remained fairly consistent over the same period.

⁴ Risks included in the risk distribution are fixed income investment risk, equity investment risk, interest rate/liquidity risk, premium risk, reserve risk, credit risk, catastrophe risk, and operational risk – see Appendix A.

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Operational risk charge appears to be gradually declining over the last three years, which may suggest that the (re)insurers corporate governance and risk management functions have been improving over the period. Further details on operational risk have been discussed under the ‘operational risk’ section below.

Capitalisation:

Below is a summary of overall market enhanced capital requirement (ECR) ratio over the last four years generated by the BSCR model and distribution of the same across the market. The ECR ratio is a key indicator of the (re)insurers’ capitalisation level relative to regulatory capital requirements.

Exhibit 2.2: Trend of average ECR ratio

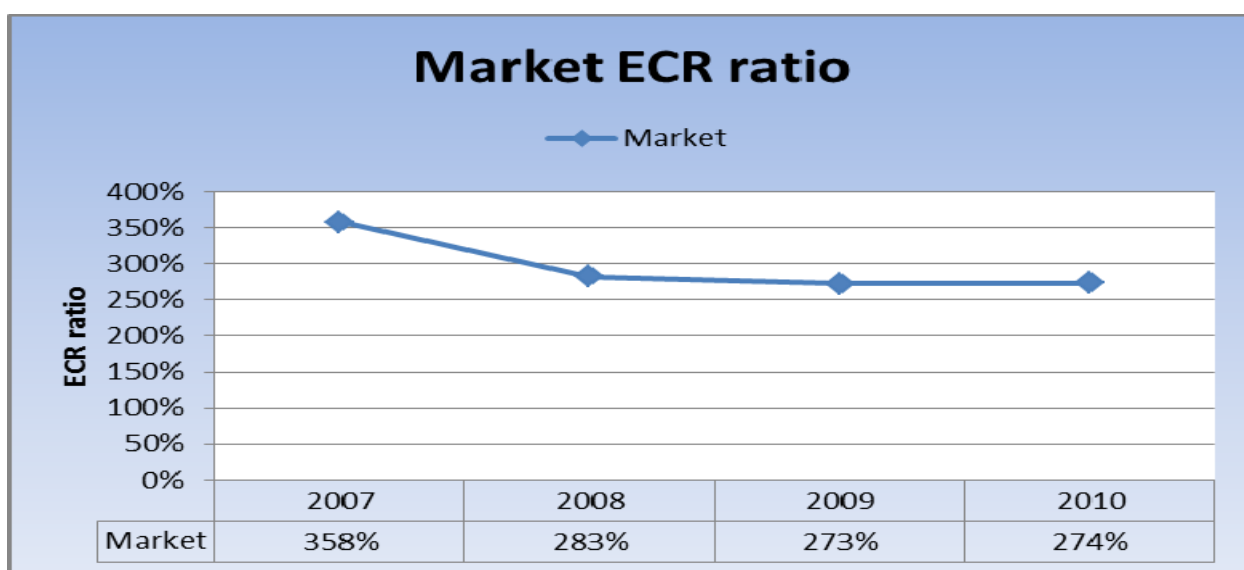
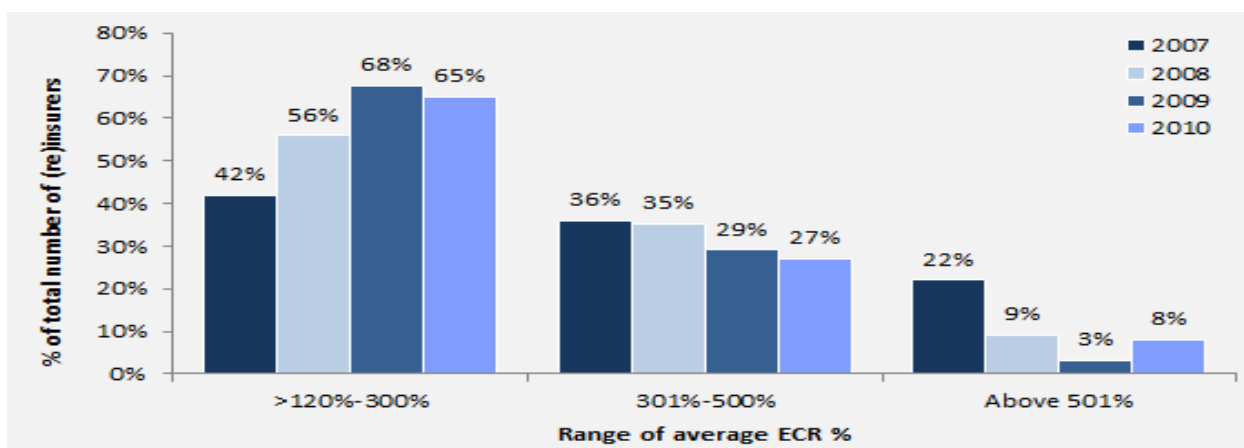


Exhibit 2.3: The distribution of average ECR ratios



As shown on Exhibit 2.2 above, the overall market continued to maintain strong capitalisation in 2010. This negligible increase can largely be attributed to a variety of reasons including movements in major risk drivers such as an increase in average reserves partially mitigated by a decline in the average

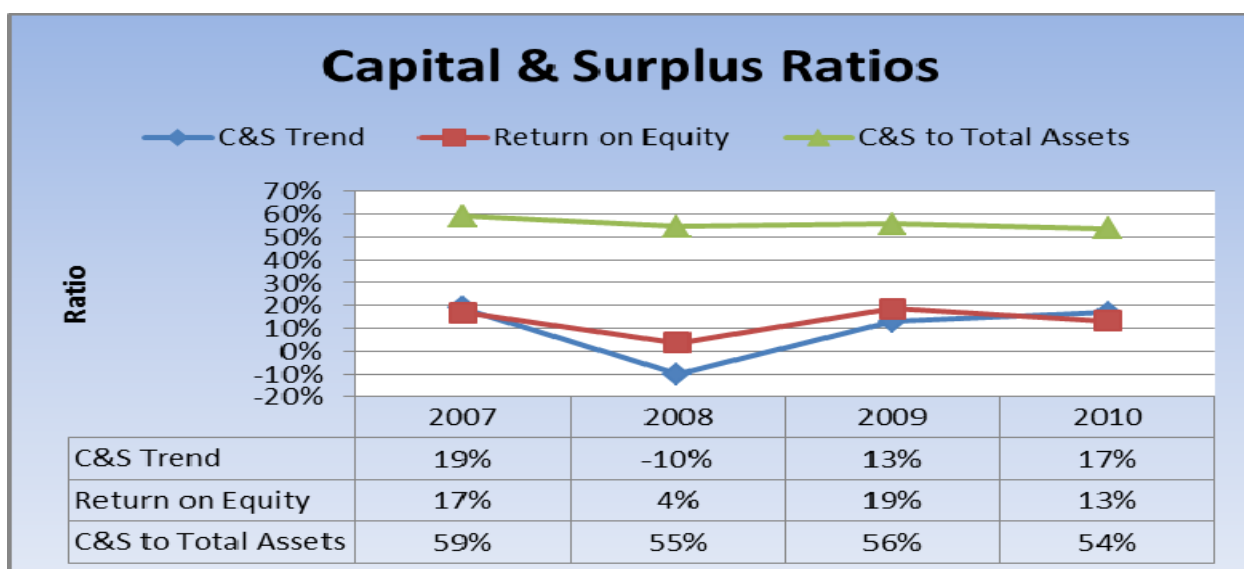
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catastrophe risk charge, etc., despite the noted increase in average capital and surplus by 17%. The inclusion of Class 3B (re)insurers in 2010 has largely influenced the ECR ratio trend.

Overall, an average ECR ratio of 274% for the 2010 year-end would suggest that on average the market has sufficient capital to support existing business.

Exhibit 2.3 reflects the distribution of the ECR ratio across the market and suggests that all the (re)insurers met the desired target capital level of 120% of the ECR with about 35% of the (re)insurers reporting an ECR ratio of above 300% in 2010 (32% in 2009).

Exhibit 2.4: Capital and surplus ratios



Based on Exhibit 2.4 above, the market capital position continued to improve during the year registering a 17% average growth in capital and surplus in 2010 (13% growth in 2009). The increase in capital and surplus over the last two years has been driven primarily by positive underwriting and investment performance as reflected by 19% and 13% return on equity achieved in 2009 and 2010, respectively.

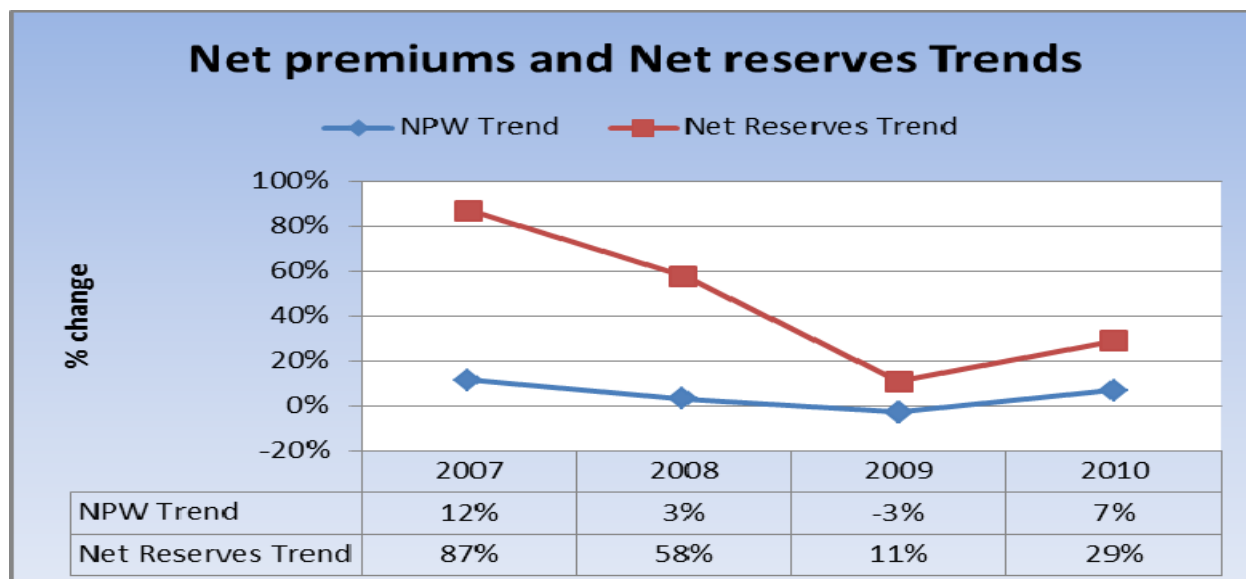
The ratio of the (re)insurers' capital and surplus to total assets which is a measure of the (re)insurers' financial stability and ability to protect the policyholders seems to have remained fairly consistent over the years.

Underwriting performance:

Below is a summary of key underwriting ratios that provide insight into the overall underwriting performance over the last four years.

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Exhibit 2.5: Net premiums written and net loss and loss expense provisions trends



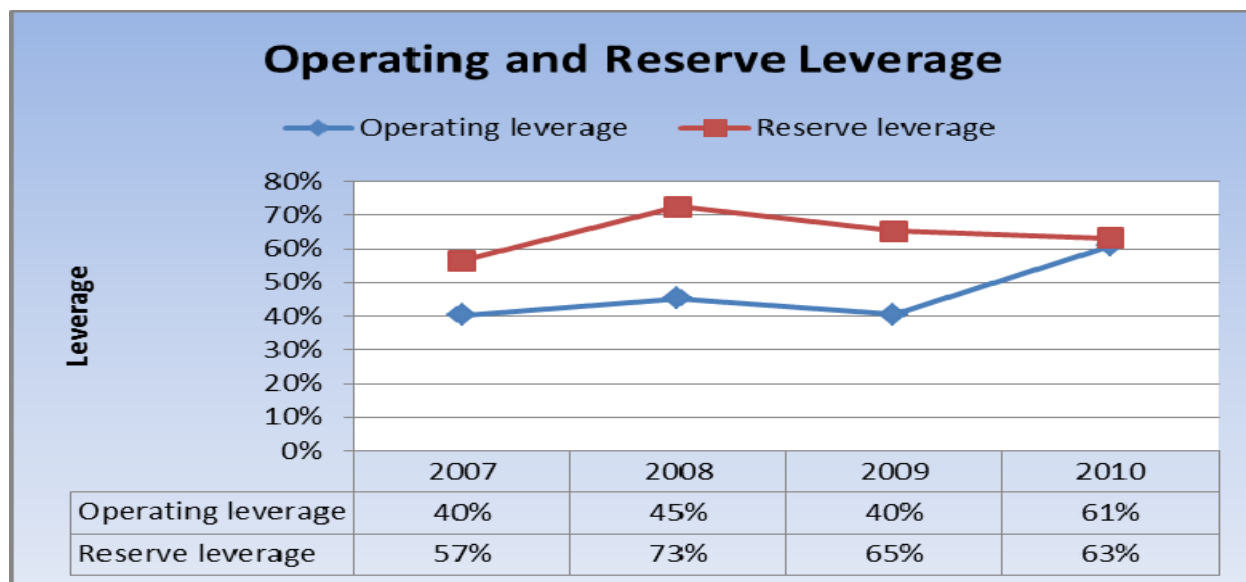
The market recorded moderate growth in net premiums written reflecting a 7% growth in 2010 reversing the 3% decline registered in 2009. However, while 2010 appears to have brought new market opportunities and recorded marginal increases in premium rates for certain lines, pricing continued to be under pressure from a competitive environment, excess capacity and weak macroeconomic conditions.

According to 2010/11 Global Reinsurance Review & Outlook by Fitch (Page 2), the strong capital position that many (re)insurers found themselves in at the start of 2010 led to abundant capacity for many lines of business and resulted in downward pressure on premium rates in the January 2010 renewal season with a similar trend observed for April, June and September 2010 renewals.

Similar to net premiums, net reserves increased by an average of 29% (11% in 2009). The strengthening of reserves was particularly noted under the property sector which registered a 57% increase in average net reserves in 2010. This increase in the property sector reserves could be attributed mainly to higher catastrophe losses in 2010 as compared to 2009.

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Exhibit 2.6: Operating and reserve leverage



As reflected on Exhibit 2.6 above, the market operating and reserve leverage appears to have moved consistently over the years except in 2010 due to the inclusion of Class 3B (re)insurers. Class 3B (re)insurers include domestic health business writers and a financial guaranty writer, which have a unique profile from the Class 4 (re)insurers.

Operating leverage is a key indicator of the (re)insurers' ability to support existing business and future growth. It is also a measure of the (re)insurers' financial strength with a lower ratio being generally favourable. On the other hand, reserve leverage provides insight into the (re)insurers' ability to cover unanticipated reserve deficiencies with a lower ratio being favourable generally speaking.

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Exhibit 2.7: Net premiums written by statutory line of business

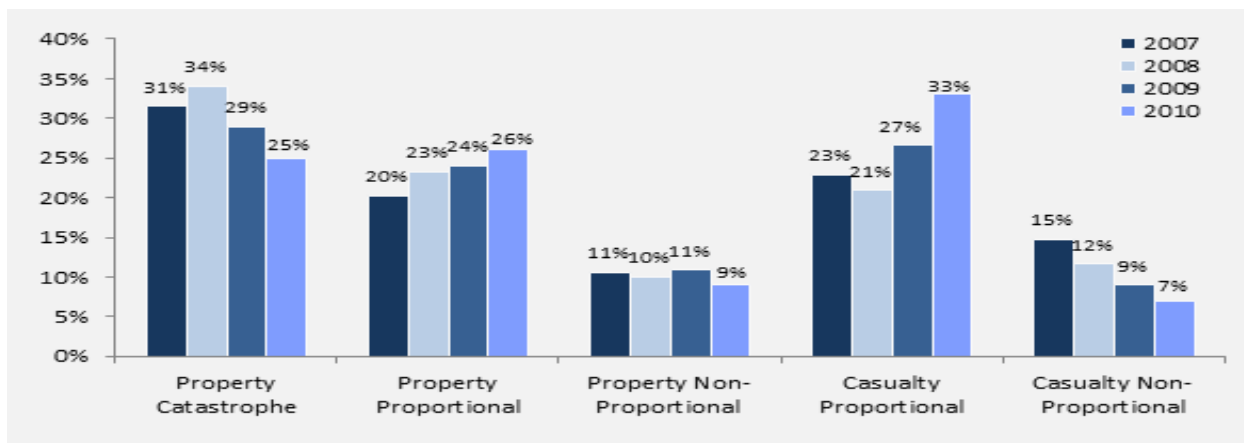
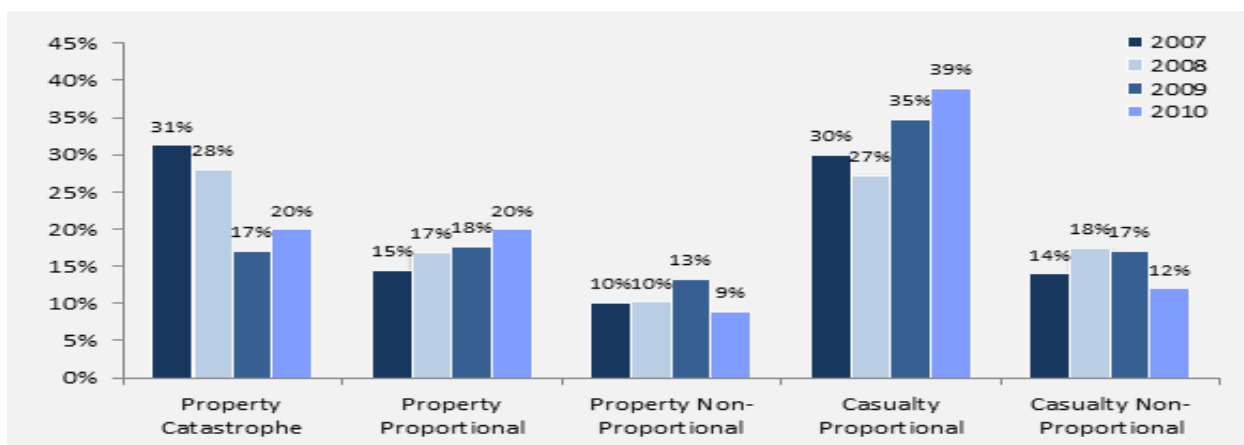


Exhibit 2.8: Net loss and loss expense provisions by statutory line of business



Exhibits 2.7 and 2.8 above provide an insight into the (re)insurers relative mix of business. As noted previously, the Bermuda market remains a key catastrophe market with pure property catastrophe business accounting for about 25% of total net premium written (29% in 2009). On average the Bermuda market appears to write more property-related than casualty lines of business, which constituted about 60% of the total net premiums written in 2010 (64% in 2009).

Overall, the business mix appears to be shifting over the period in favour of proportional lines over non-proportional lines. There is also a notable trend in favour of casualty lines over property lines; casualty lines accounted for 40% of the net premiums written in 2010, up from 36% in the prior year.

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Exhibit 2.9: Combined and loss ratios

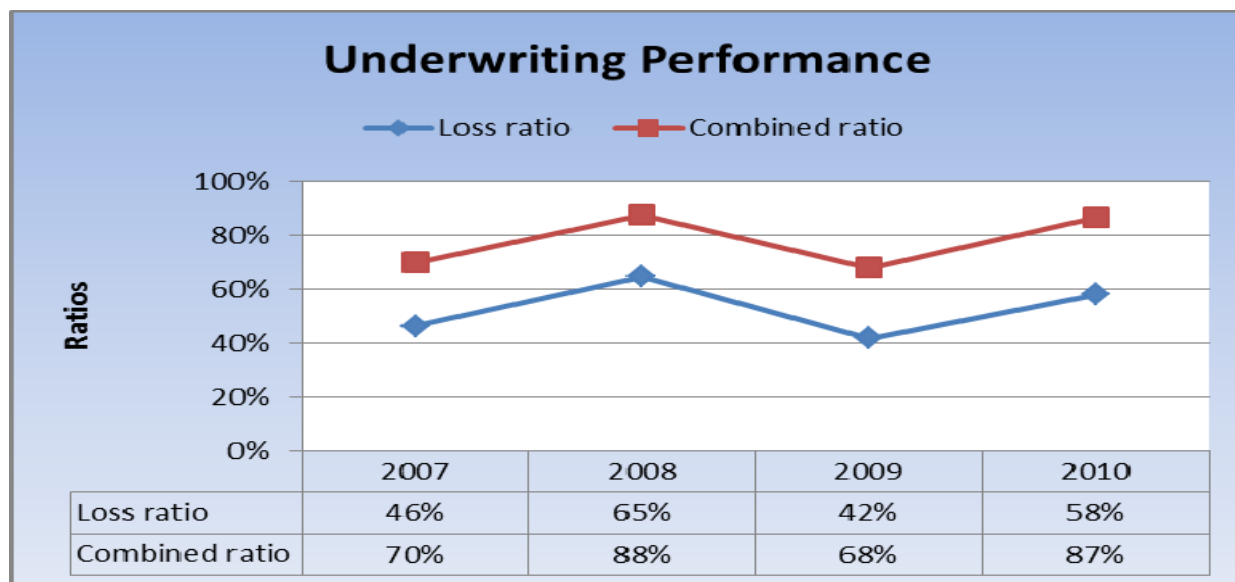


Exhibit 2.9 above reflects a significant decline in the overall underwriting profitability in the market during 2010 with the loss ratio increasing to 58% up from 42% in 2009. The significant shift could largely be attributed to a series of catastrophe losses in 2010 compared to 2009, which was characterised by a dearth of major catastrophe events.

Three of the largest catastrophic events in 2010 occurred outside of the United States including major earthquakes in Chile and New Zealand and Winter Storm Xynthia, which generated considerable insured losses. While no major hurricanes made landfall in the United States in 2010, the losses arising from winter storms on the United States East Coast and large Midwest floods had adverse impact on earnings for (re)insurers.

Catastrophe risk and stress scenarios:

As reflected on exhibit 2.1 at the beginning of this section, catastrophe risk is a major risk exposure for the Bermuda market accounting for about 26% of the BSCR prior to covariance adjustment in 2010 (34% in 2009). A key indicator of the exposure is the ratio of net probable maximum loss (PML) to capital and surplus (C&S), which is reflected on Exhibit 2.10 below.

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Exhibit 2.10: Net probable maximum loss to capital and surplus

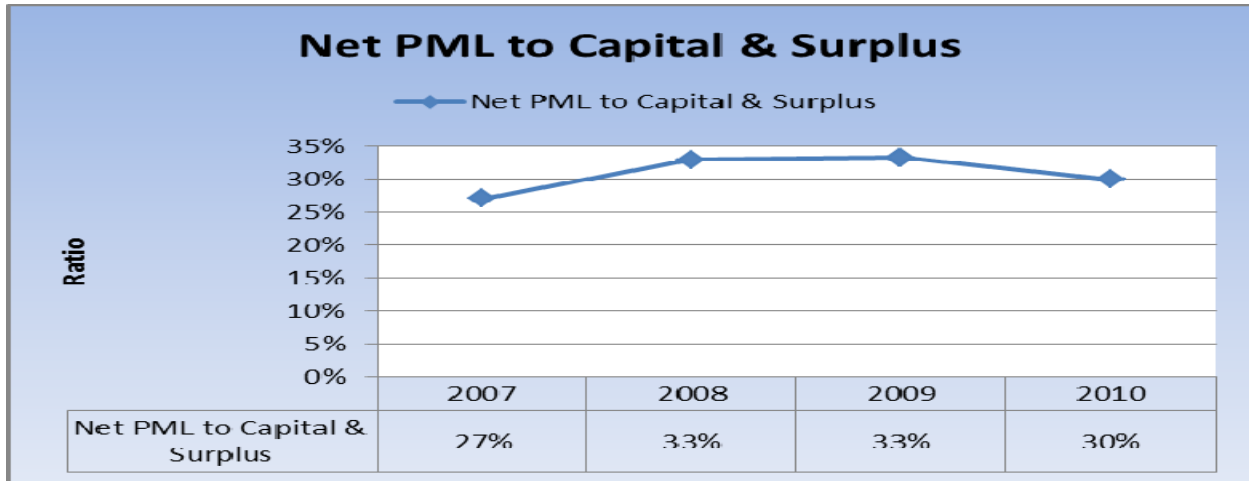


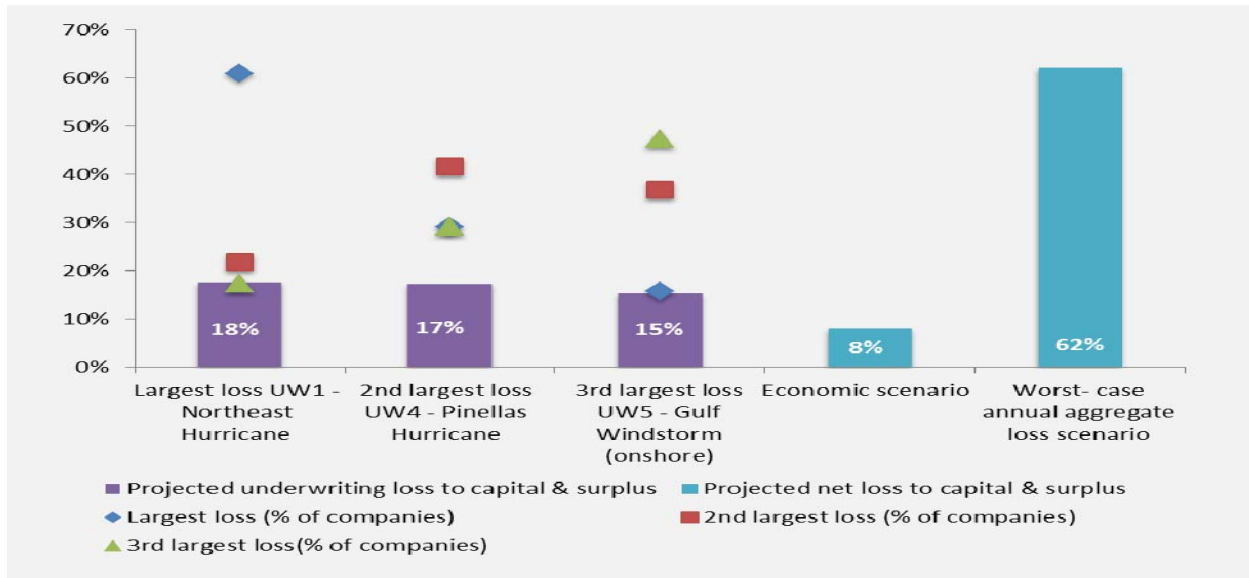
Exhibit 2.10 shows that on average the ratio net PML to capital and surplus declined to 30% in 2010 from 33% in 2009. This appears to be consistent with the decline in the catastrophe risk charge in 2010 to 26% from 34% in 2009 as discussed previously. The decline in the exposure may be attributed mainly to continued growth in the (re)insurers’ capital and surplus (17% increase in 2010 on average) resulting in a relatively lower ratio for the year.

Stress scenarios:

Appendix B outlines the economic and underwriting scenarios as well as the exposure territories as prescribed by the Authority. Below is a summary of the largest prescribed underwriting scenario loss projections, economic scenario and the worst-case scenario projected losses relative to capital and surplus.

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Exhibit 2.11: Projected losses under the three largest underwriting scenarios, economic and the worst case scenarios



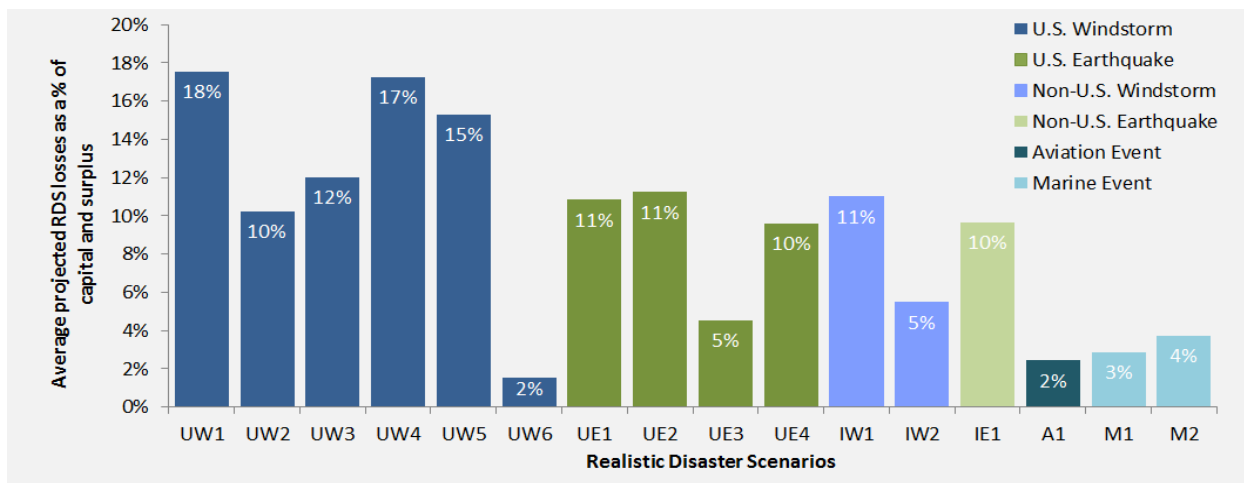
For the underwriting scenario projected losses, similar to 2009, Pinellas Hurricane, Northeast Hurricane and Gulf Windstorm (onshore) remained the three largest accounting for an average of 18%, 17% and 15% of the (re)insurers capital and surplus, respectively, in 2010 (18%, 18% and 17%, respectively, in 2009).

The economic scenario projected losses impact on the (re)insurers capital averaged about 8% in 2010 up from 5% in 2009, while the worst-case scenario loss projection is expected to have a 62% impact on average on the (re)insurers capital and surplus (60% in 2009). Given the magnitude of the worst-case scenarios relative to capital, certain (re)insurers may not have sufficient capital to cover the losses without breaching the regulatory capital requirements. Consequently, the Authority continues to closely monitor the performance of these (re)insurers especially with the frequency of major catastrophe events increasing in 2011 to ensure that experienced losses do not jeopardise the (re)insurers' ability to meet policyholders obligations.

A breakdown of the average ratio of projected underwriting losses based on the realistic disaster scenarios relative to capital and surplus is reflected on Exhibit 2.12 below.

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Exhibit 2.12: Average projected underwriting losses to capital and surplus



NOTE: Refer to Appendix B for a description of the above underwriting loss scenarios

Consistent with the prior year of the prescribed scenarios, the U.S. windstorm (UW) and U.S. earthquake (UE) remains the largest threat to the Bermuda entities’ solvency, although Non-U.S. windstorm (IW) and Non-U.S. earthquake (IE) also constitutes key exposures for the market. Exceedance Probability (EP) curves for major region-perils at various return periods are discussed in more detail under the ‘Sector Overview’ section of this report.

Region-peril EP curves:

The region-peril net exceedance probability curve covers exposure to losses from all insurance and reinsurance operations including the impact of any insurance-linked securities investment, catastrophe swaps, industry loss warranties and other non-traditional risk assumption/mitigation techniques.

The following exhibits show the occurrence view of (re)insurers’ capital strength at various return periods for the major region-perils. Consistent with the result of stress scenario, U.S. windstorm remained the primary threat to (re)insurers’ solvency accounting for an average of 17% of statutory capital and surplus at 1 in 100 TVaR level.

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Exhibit 2.12.1: Atlantic Basin Hurricane – Net per occurrence EP curve

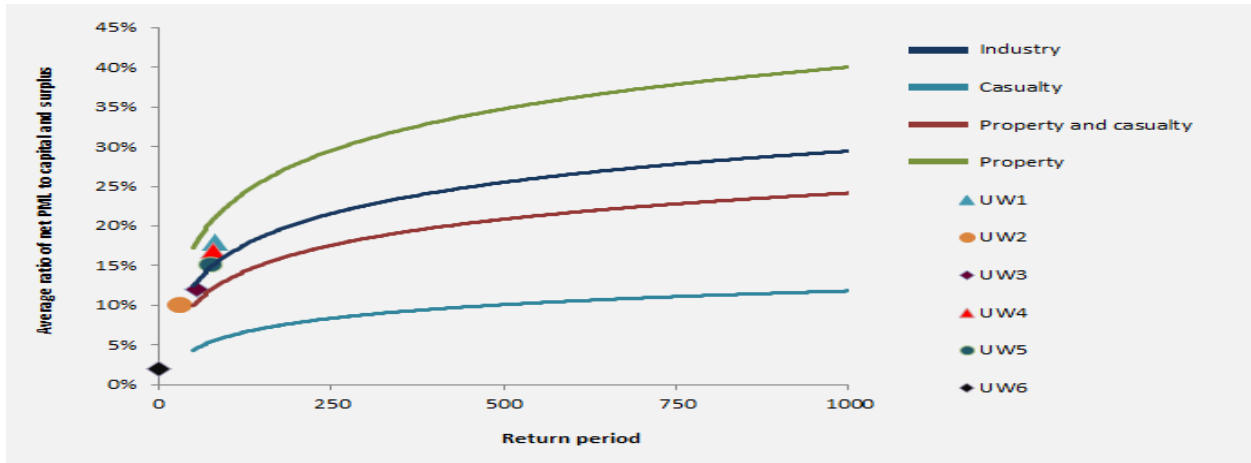
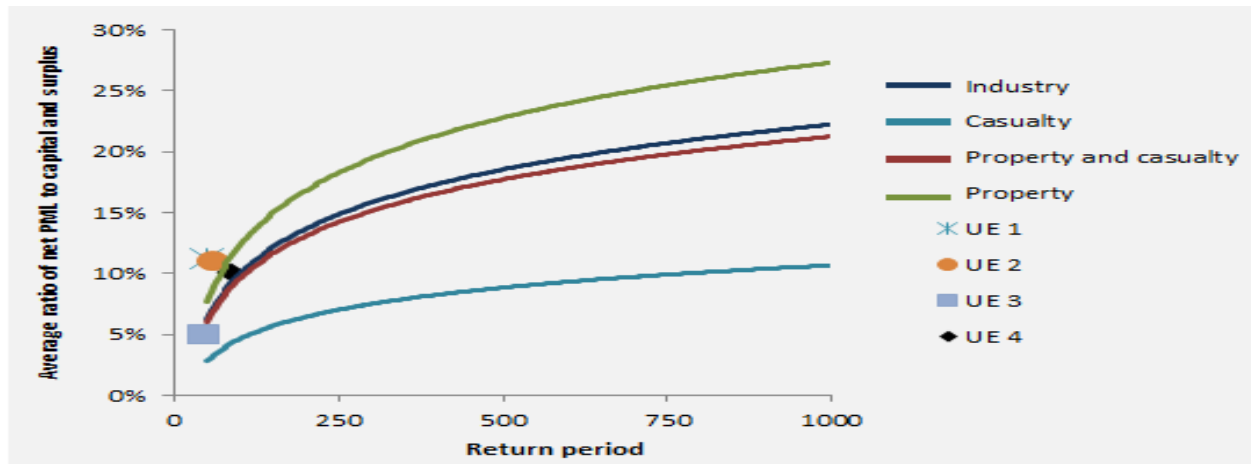


Exhibit 2.12.2: North American Earthquake – Net per occurrence EP curve



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Exhibit 2.12.3: European Windstorm – Net per occurrence EP curve

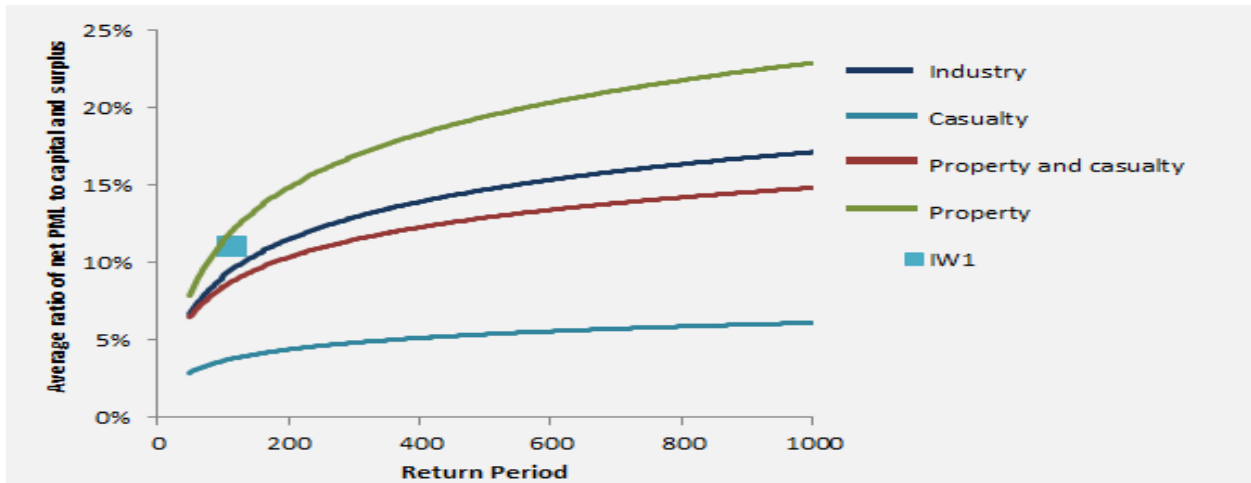
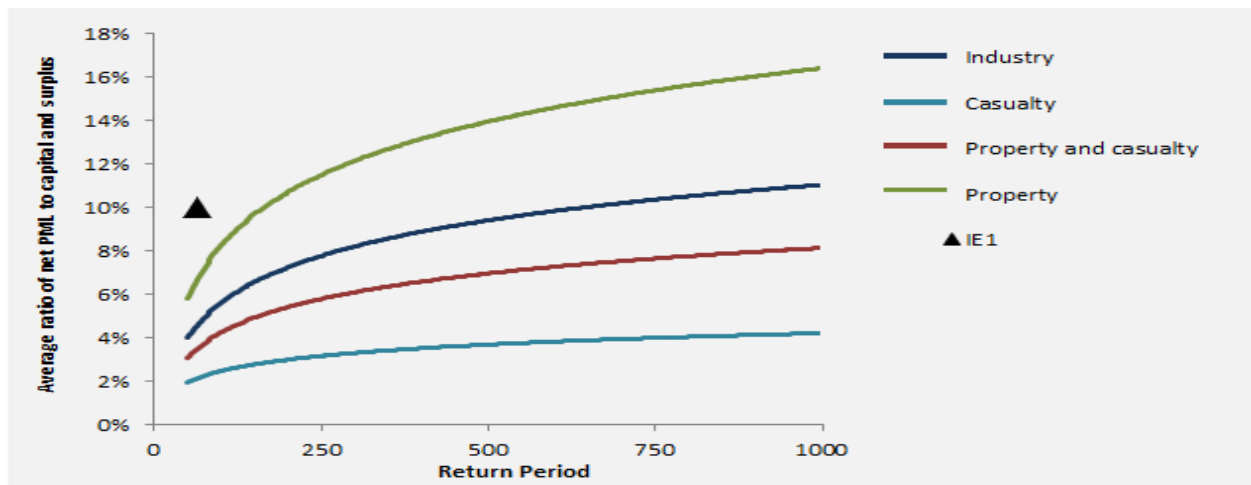
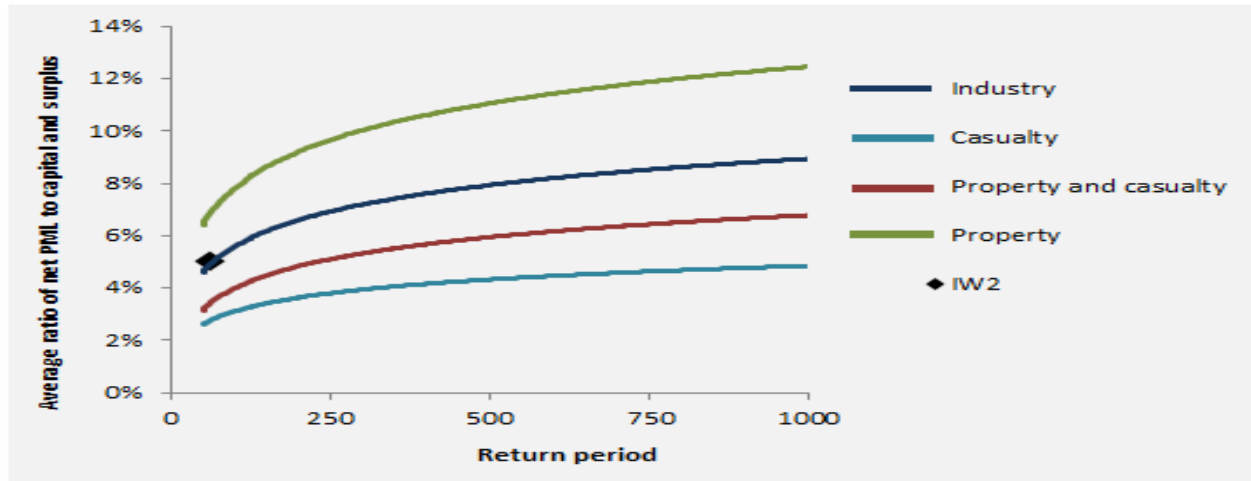


Exhibit 2.12.4: Japanese Earthquake – Net per occurrence EP curve



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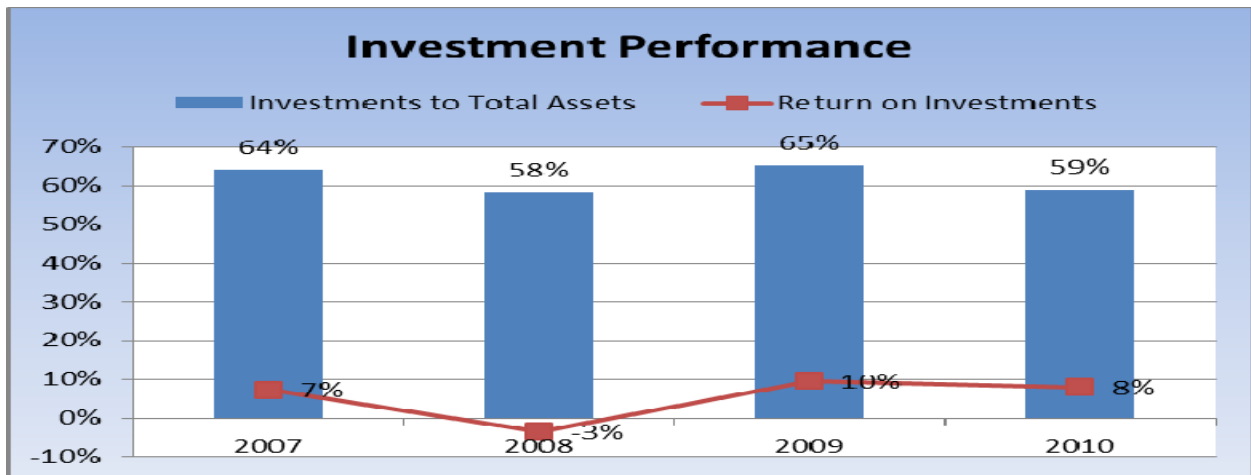
Exhibit 2.12.5: Japanese Typhoon – Net per occurrence EP curve



Investment performance:

Below is a summary of key investment ratios which provides an insight into the overall exposure to investments and the related performance over the last four years.

Exhibit 2.13: Total investments to total assets and return on investments



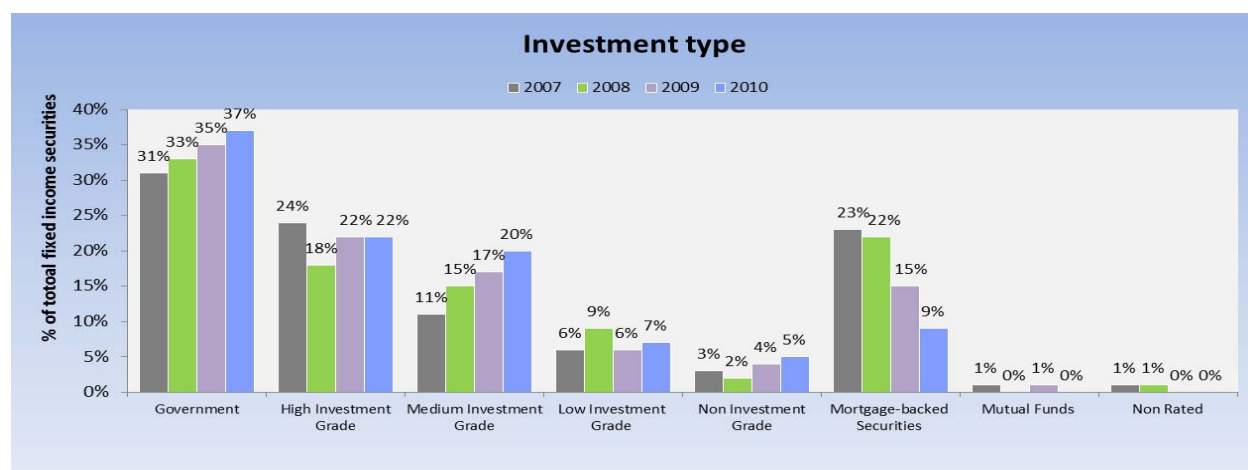
As shown on Exhibit 2.13 above, total investments (quoted and unquoted) constitutes a significant portion of the (re)insurers’ balance sheet, accounting for about 59% of total assets in 2010 (65% in 2009). The decline in 2010 could be attributed to the prevailing weak macroeconomic conditions that continued to exert pressure on investment values, as well as to the disposal of investments to meet the significant capital distributions made during the year as discussed previously. The overall return on investments

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declined to 8% down from 10% achieved in 2009 largely due to the weak financial conditions that prevailed during the year

Despite the sluggish financial conditions that prevailed during the year, the market continued to benefit from realised and unrealised investment gains albeit being relatively lower than 2009. Further, lower return on investments may also be attributed to the prevailing low interest rate environment which had an adverse impact on interest income from fixed income securities which form the bulk of the investment portfolios for the (re)insurers. Exhibit 2.14 below shows a breakdown of the fixed income investment portfolio across the market.

Exhibit 2.14: Fixed income securities by investment type



Based on Exhibit 2.14, the (re)insurers have continued to increase their exposure to government and medium investment grade securities while exposure to mortgage-backed securities has been on a downward trend over the last four years. Exposure to high investment grade securities appears to have remained relatively unchanged. The overall fixed income investment portfolio appears to be shifting toward medium and highly rated securities including government securities, which collectively accounted for 79% of the portfolio in 2010 (74% in 2009), at the expense of mortgage-backed securities.

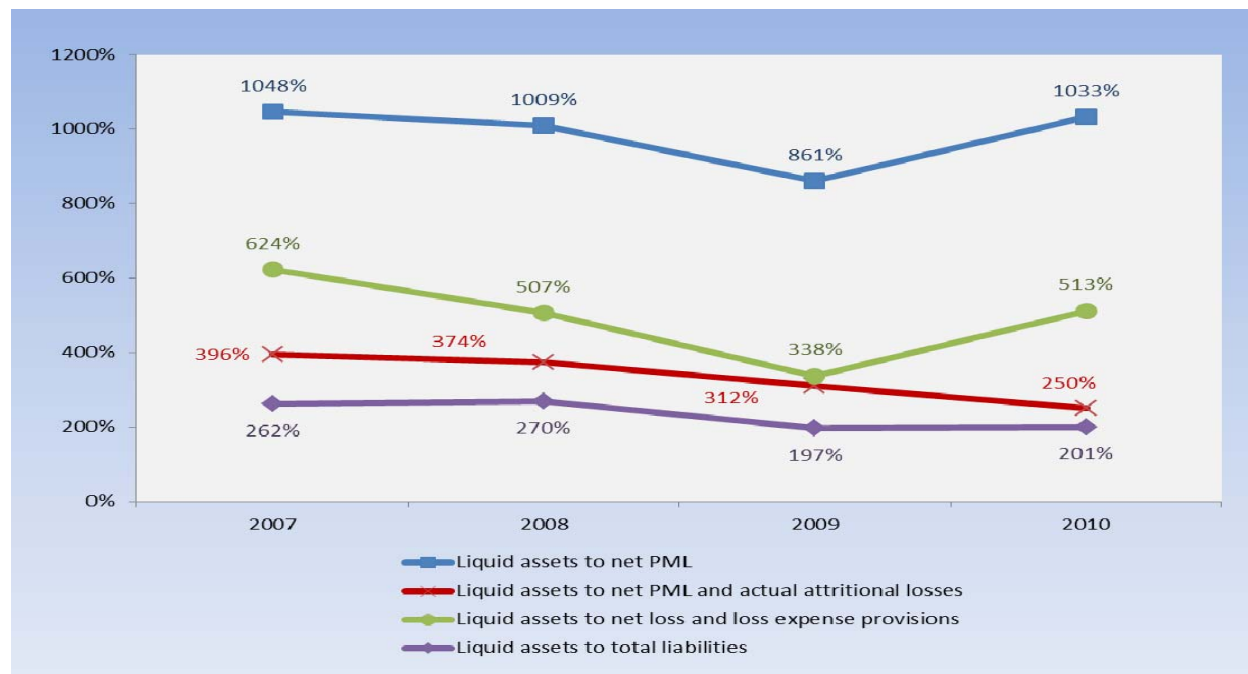
While increased exposure to government securities and high investment grade securities would generally improve the quality of the portfolios, given their favourable ratings, the continued increased exposure to medium investment grade securities could be driven by the need for higher yields especially in light of the prevailing low interest rates environment.

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Liquidity:

Exhibit 2.15 below provides a summary of key liquidity ratios over the last four years.

Exhibit 2.15: Liquidity ratios



The liquidity ratios provide insight into the (re)insurers' ability to meet their obligations as they fall due covering both attritional and catastrophe losses. The overall liquidity position for the (re)insurers appears to have improved in 2010 compared to 2009 with the various liquidity ratios showing an upward trend. This increase is also influenced by the inclusion of Class 3B reinsurers in 2010 which reflected relatively higher liquidity positions. Overall, the (re)insurers continue to reflect availability of sufficient liquid assets to support their obligations including catastrophe-related obligations as represented by the net PML.

In calculating the liquidity ratios above, the following assets were considered to be liquid assets: cash and time deposits (Form 1A, Line 1), total quoted investments (Form 1A, Line 2(f)), total unquoted investments (Form 1A, Line 3(f)), investment income due and accrued (Form 1A, Line 9), total accounts and premiums receivable (Form 1a, Line 10(d)) and reinsurance balances receivable (Form 1A, Line 11(e)). Non-investment grade and non-rated fixed income securities were excluded from total investments for this calculation. Unquoted bonds and debentures were included in the calculation since most have been categorised as Level 2 in the fair value hierarchy.

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Operational risk:

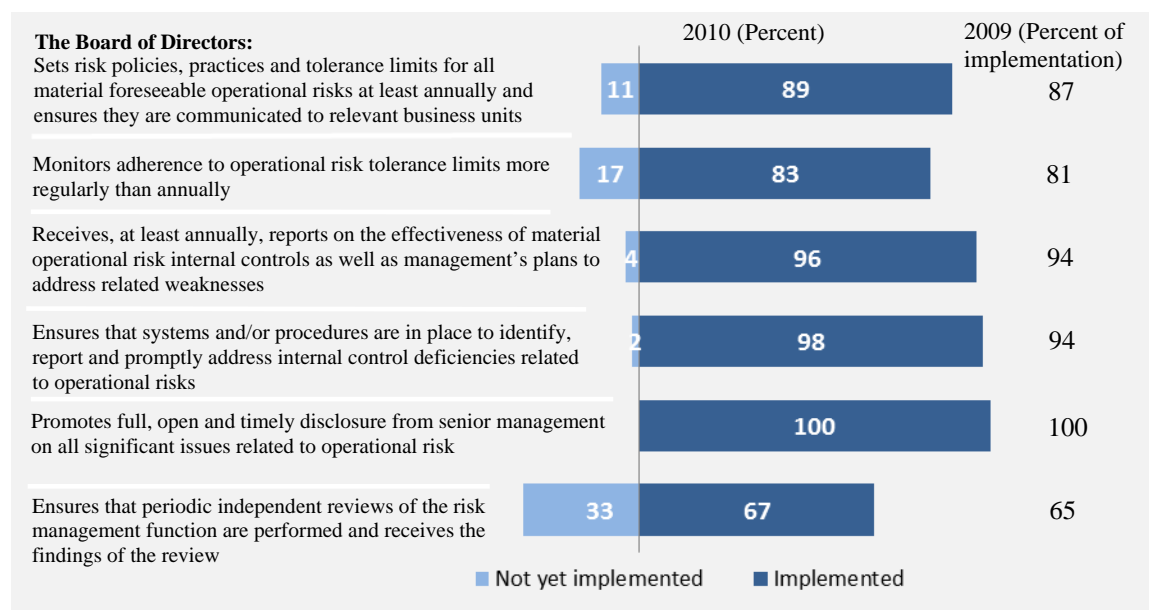
The Commercial Insurer Risk Assessment (“CIRA”) framework⁵ is used to assess the (re)insurer’s operational risk charge within the BSCR model. The operational risk charge ranges from 1% to 10% of the BSCR after covariance adjustment based on the (re)insurer’s self-assessment of its corporate governance and risk management through the CIRA framework.

The CIRA Framework includes a maturity model that has four components: risk identification, risk measurement, risk response, and risk monitoring & reporting. The (re)insurers undertake the self-assessment regarding the quality of their risk management processes in relation to eight material operational risk areas: Fraud; Human Resources; Outsourcing; Distribution Channels; Business Processes; Business Continuity; Information System; and Compliance Risk.

As noted under the ‘Risk distribution’ section above, the operational risk charge appears to be gradually declining over the last three years with 2010 reflecting an average of 5% risk charge (6% in 2009). This suggests that the (re)insurers corporate governance and risk management functions have generally been improving over the period. This has been evidenced by the results of the CIRA framework as summarised under the exhibits below. The appropriateness of self-assessments are confirmed by the Authority during its on-site inspection of the (re)insurers.

Exhibit 2.16: Corporate governance function

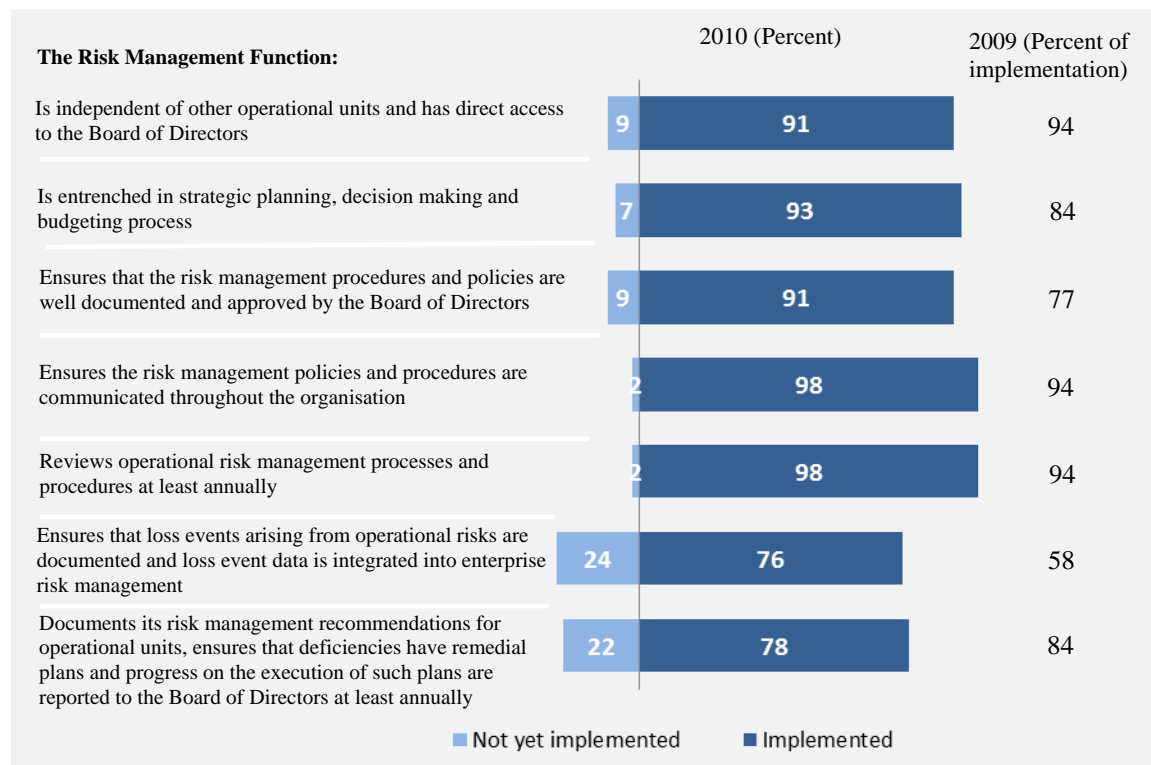
The (re)insurers are requested to indicate which of the criteria below have been implemented:



⁵ Refer to Guidance Note #17 Commercial Insurer Risk Assessment, November 2008

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Exhibit 2.17: Risk management function



The maturity model identifies where the (re)insurers are on the continuum, from “no implementation” to having a process that is entrenched within their operations, well-documented, understood by relevant staff and reviewed at least annually with the view to assessing effectiveness and introducing improvements in terms of risk identification, risk measurement, risk response, and risk monitoring and reporting. The (re)insurers identify the stage of progression of each operational risk area based upon the Dimension descriptor. The details of the stage of progression are as follows:

Stage	Dimension
1	“ad hoc”
2	Implemented but not standardised across the organisation
3	Implemented, well documented policies and procedures that are understood by relevant staff, and standardised across the entire organisation
4	In addition to Stage 3, processes are reviewed at least annually with the view to assessing effectiveness and introducing improvements

The positive development in risk maturity profiles has continued in 2010 as shown on Exhibits 2.18 through to 2.21 below. Generally, most of the dimensions have improved with the biggest improvement

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found in risk monitoring and reporting. Overall, the identification, measurement, response and monitoring and reporting of operational risk are well embedded into day-to-day processes.

Exhibit 2.18: Maturity stage for Risk Identification under the eight operational risk areas

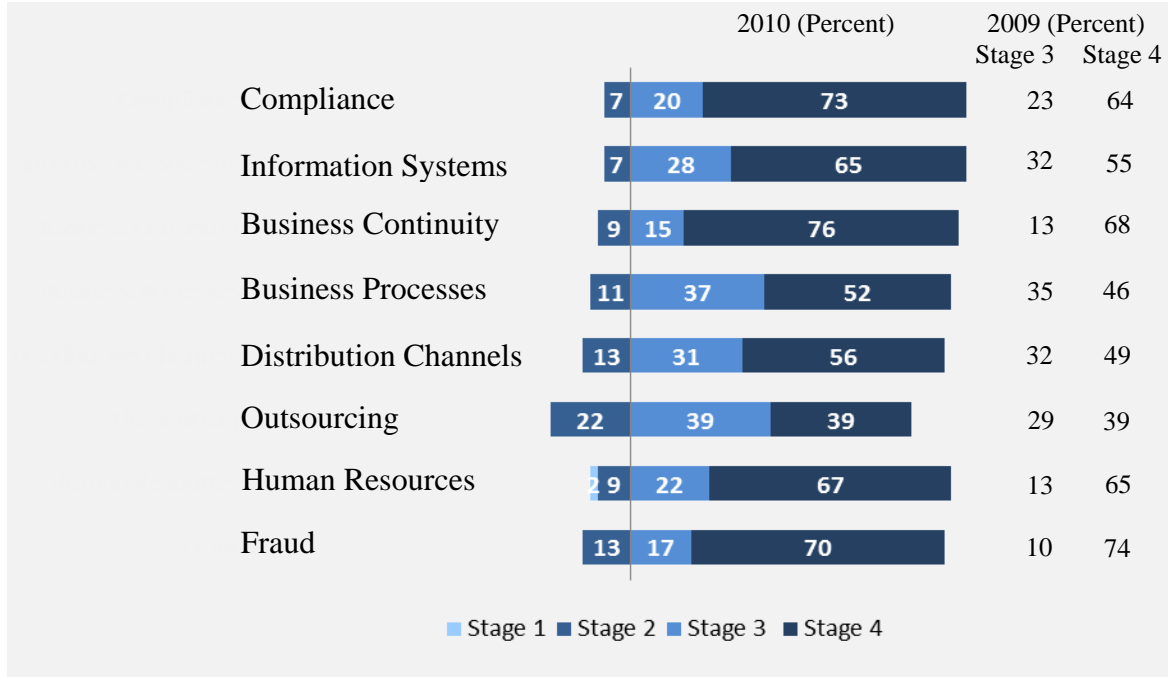
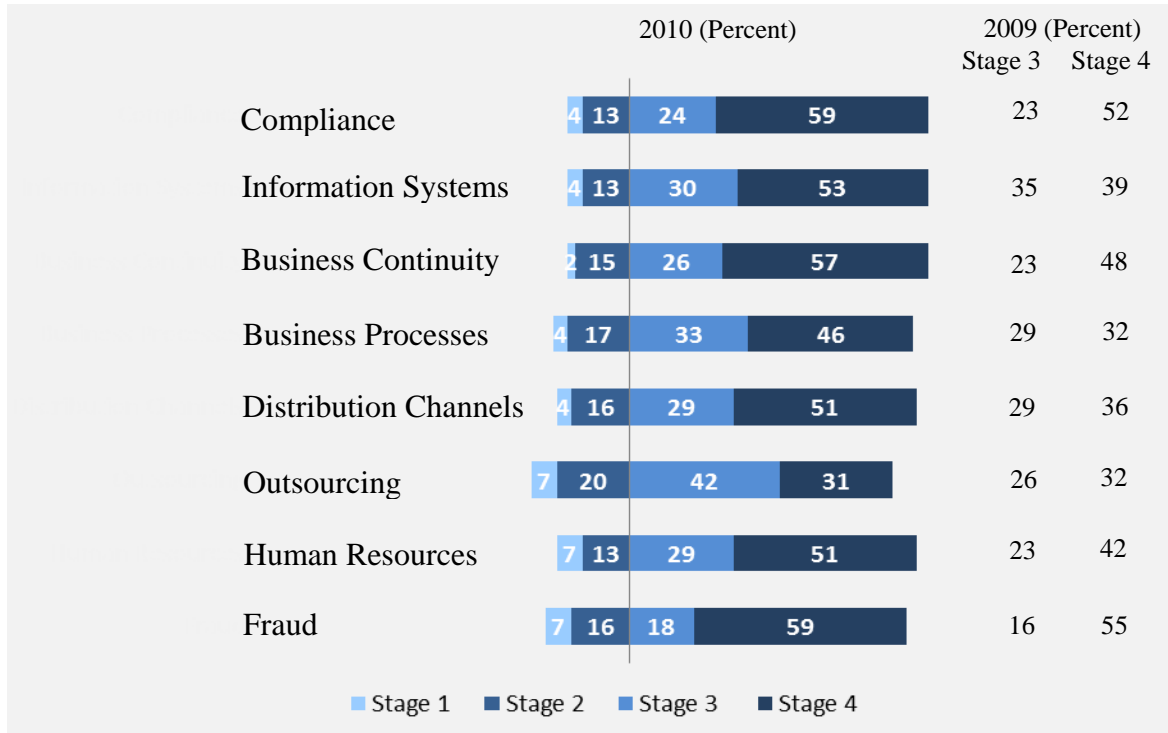


Exhibit 2.19: Maturity stage for Risk Measurement under the eight operational risk areas



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Exhibit 2.20: Maturity stage for Risk Control and/or Mitigation under the eight operational risk areas

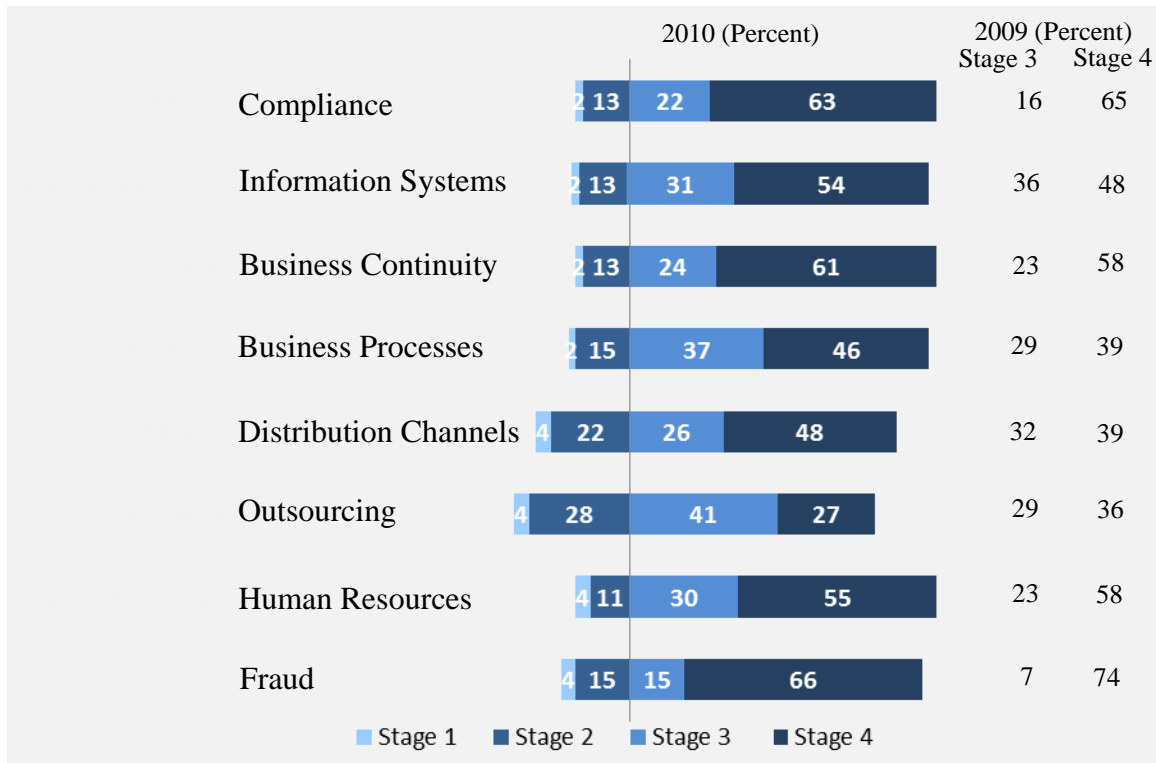
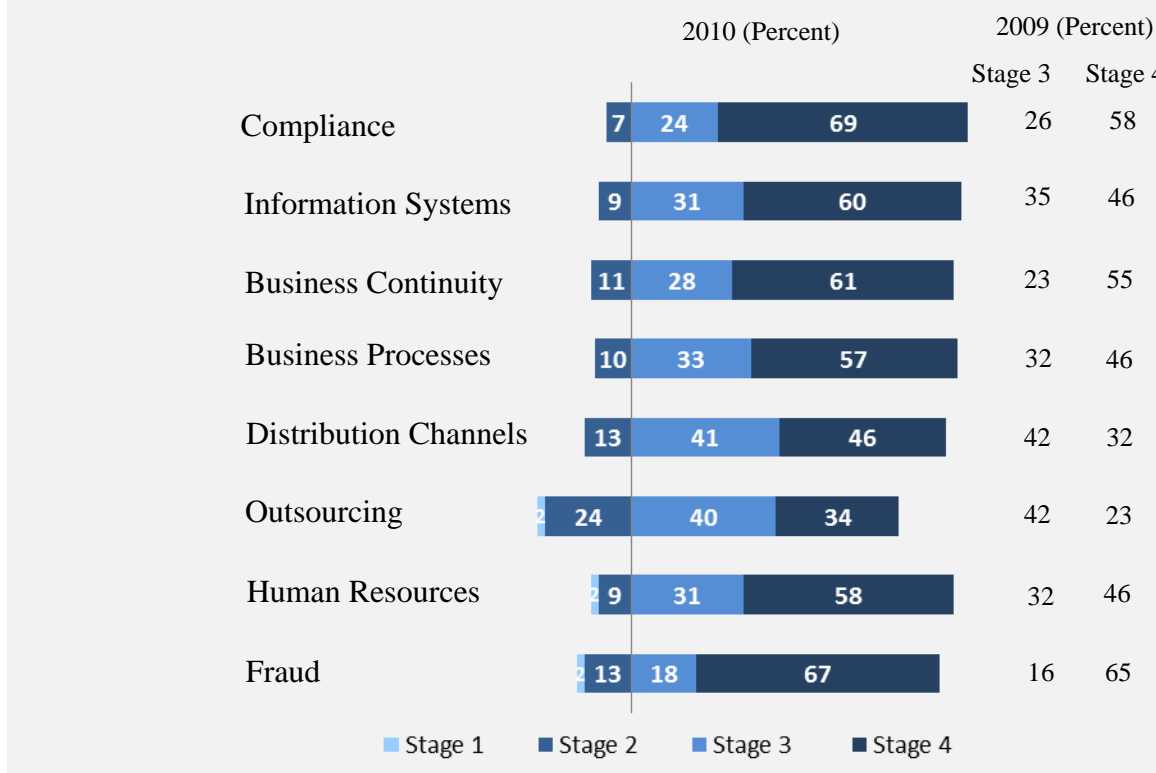


Exhibit 2.21: Maturity stage for Risk Monitoring and Reporting under the eight operational risk areas



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2.2 Sector Overview

For the purposes of this report, the Class 4 and 3B (re)insurers have been grouped into three primary sub-sectors based on the predominant lines of business (LOB) written:

- (i) Property sector – includes (re)insurers with over 60% of their net premiums arising from property⁶ lines of business.
- (ii) Casualty sector – includes (re)insurers with over 60% of their net premiums arising from casualty⁷ lines of business.
- (iii) Property & Casualty (P&C) sector – includes (re)insurers with between 40% and 60% of their net premiums arising from property or casualty lines of business.

Exhibit 2.2.1: Distribution of Class 3B and 4 (re)insurers by sector

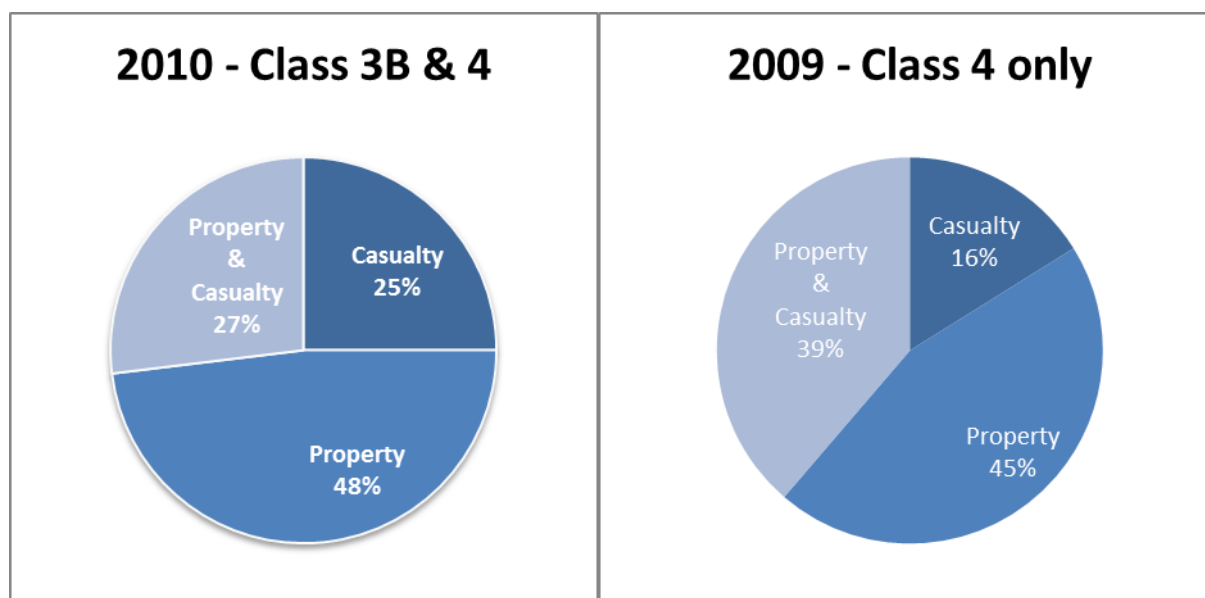


Exhibit 2.2.1 above is a broad representation of Bermuda's (re)insurers. It reflects that Bermuda remains predominantly a property market with about 85% of the market writing (on a net premiums written basis) 40% or more in property-related LOB in 2010 (84% in 2009).

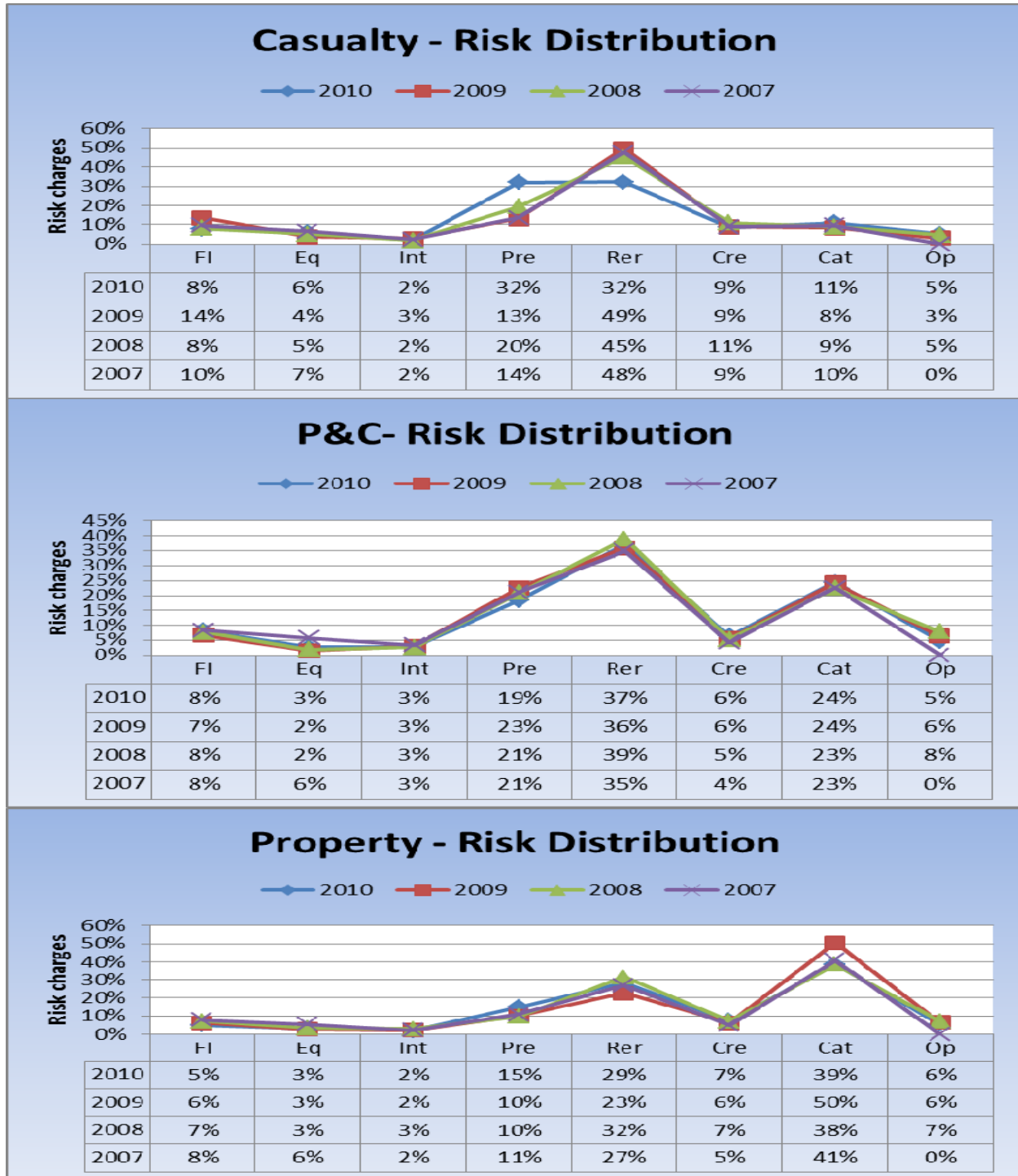
⁶ Property LOB includes Lines 1,2,3,6,7,10,11,18,19, 22 under Schedule IV (Schedule of Premiums Written by Line of Business) - see Appendix C.

⁷ Casualty LOB includes Lines 4,5,8,9,12,13,14,15,16,17,20,21,23,& 24 under Schedule IV (Schedule of Premiums Written By Line of Business) – see Appendix C.

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Risk distribution:

Exhibit 2.2.2: Risk distribution by sector⁸



⁸ Risks included in the risk distribution are fixed income investment risk, equity investment risk, interest rate/liquidity risk, premium risk, reserve risk, credit risk, catastrophe risk, and operational risk – see Appendix A.

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As reflected in Exhibit 2.2.2 above, underwriting risk remains the largest risk component across all sectors. This is so even though the differences in the proportions of the three underwriting sub-modules (premium risk, reserve risk and catastrophe risk) vary widely between each sector.

For the property sector, catastrophe risk is the largest exposure, accounting for about 39% of the undiversified capital requirement in 2010 (50% in 2009). This supports the recognition of Bermuda internationally as a key catastrophe market given that a majority of the Bermuda Class 4 and 3B (re)insurers are within the property sector. The decline in 2010 is attributed to a decline in net probable maximum loss (PML) relative to the sector's average capital and surplus which declined from 45% in 2009 to 40% in 2010 as reflected by Exhibit 2.2.8 below.

By contrast, the casualty sector has premium risk and reserve risk as its largest exposures, accounting for 64% of the undiversified capital requirement in 2010 (62% in 2009). Premium risk spiked up in 2010 to 32% from 13% in 2009 due to the inclusion of domestic health writers, while a considerable reserve risk charge is consistent with expectations on the long-tail nature of a majority of casualty lines. The decline in the reserve risk for 2010 from 49% to 32% is largely due to a 2% decline in average net reserves relative to a 8% increase in the sector's capital and surplus.

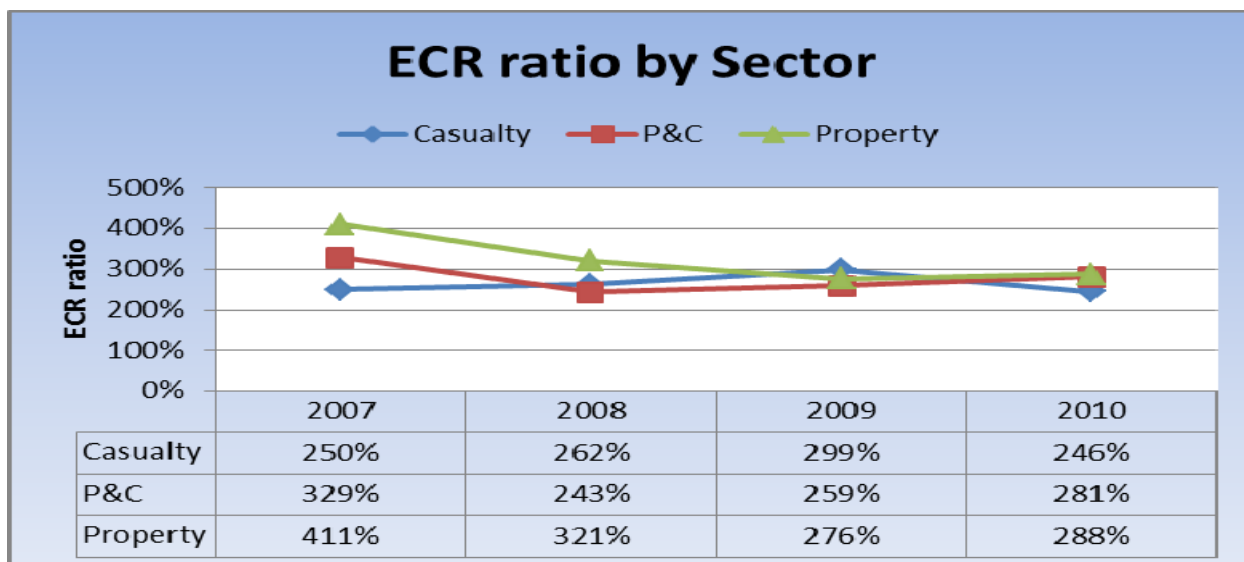
There are no significant differences observed across the three sectors with respect to the various market risk sub-modules (fixed income investment risk, equity investment risk and interest rate/liquidity risk), credit risk or operational risk.

Overall, there are notable differences in the risk profiles of the three sectors across the market, particularly with respect to the components of the underwriting risk.

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Capitalisation:

Exhibit 2.2.3: ECR ratio by sector



The average ECR ratios across all sectors (except casualty) registered significant growth in 2010 continuing the upward trend from prior year. As discussed previously, the upward trend over the last two years for the property sector and property and casualty sector is largely driven by the growth in the (re)insurers' capital and surplus over the same period as shown on Exhibit 2.2.4 below. This trend would suggest that the overall capitalisation for Bermuda (re)insurers across all sectors has been improving since 2008 when the market experienced one of worst financial crisis in recent history.

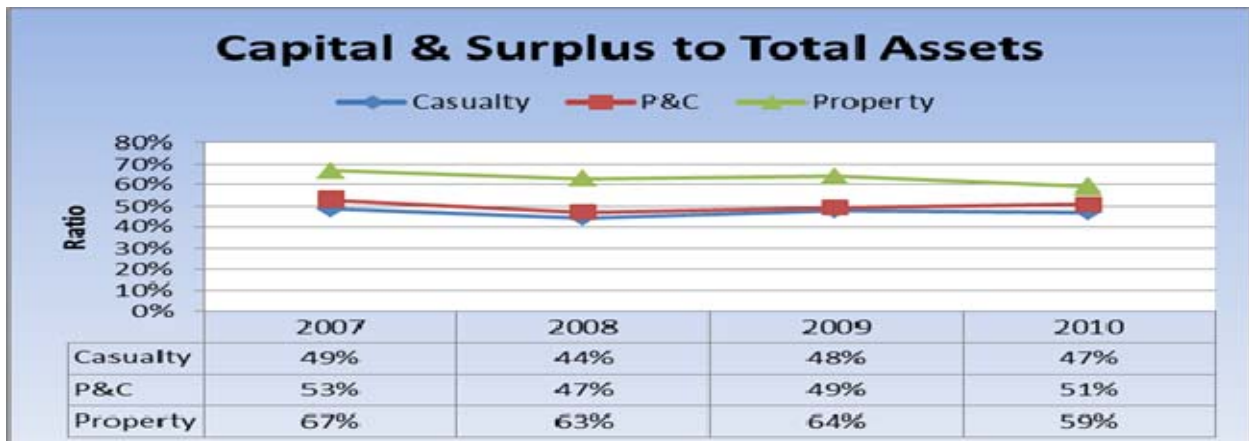
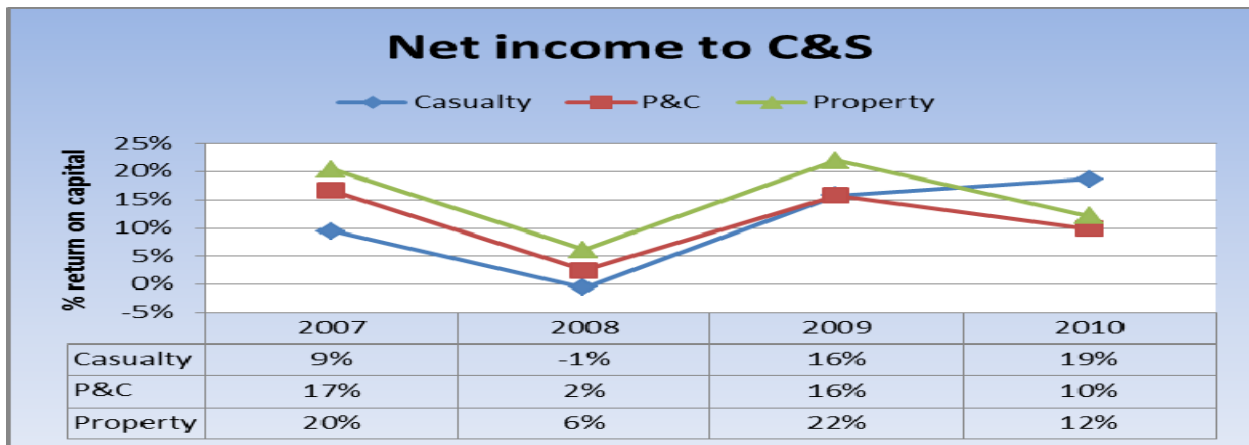
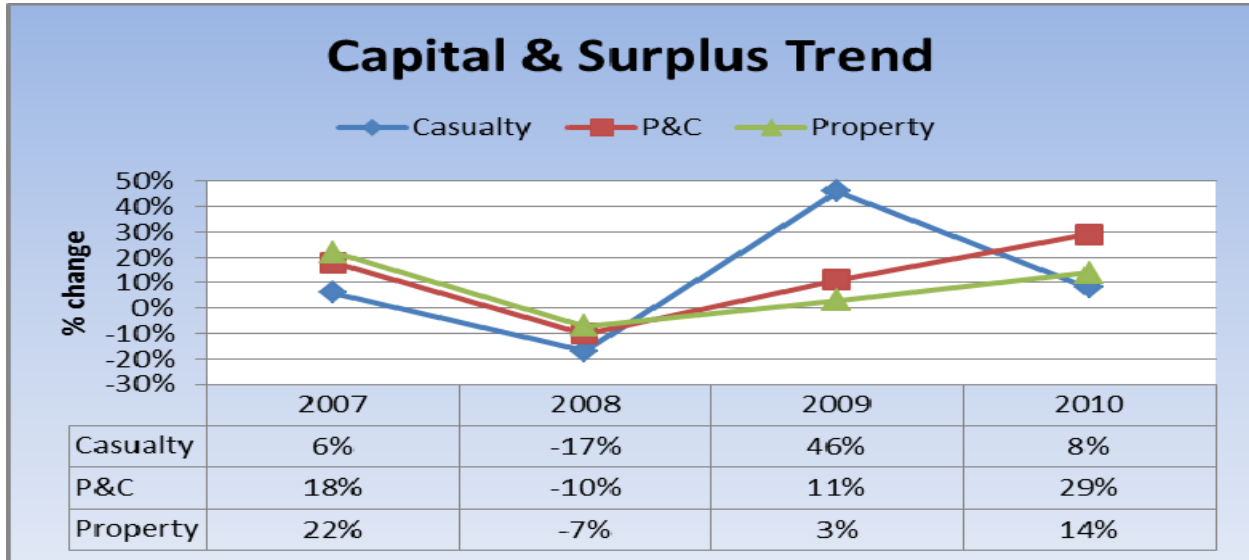
The property sector registered an increase in the ECR ratio which could be attributed to the increase in capital coupled by a lower average catastrophe exposure for the sector, as reflected by the ratio of net PML to capital and surplus which declined to 40% down from 45% in 2009 (Exhibit 2.2.8).

On the other hand, the significant decrease in the casualty sector's ECR ratio could be attributed mainly to the drop in the average capital and surplus trend of the sector from 46% in 2009 to 8% in 2010 (Exhibit 2.2.4). Such a drop was caused mostly by the sizeable dividend payment that nearly depleted the earnings for the year without the benefit of the considerable appreciation of investments experienced in 2009.

Overall, the 2010 year-end average ECR ratios as shown on Exhibit 2.2.3 would suggest that, on average, all sectors were sufficiently capitalised to support existing business.

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Exhibit 2.2.4: Capital and surplus ratios by sector



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The (re)insurers' capital and surplus positions continued to improve during the year across all sectors, albeit at different rates. The growth over the last two years has been driven primarily by positive underwriting and investment performance as reflected by the positive return on equity for all sectors.

While overall market return on equity declined to 13% in 2010 from 19% in 2009 (Exhibit 2.4), the casualty sector fared the best result achieving an average return on equity of 19%, up from 16% achieved in 2009. The property sector's return on equity declined by a significant margin to 12% down from 22% achieved in 2009. The decline in the property sector was largely attributed to deteriorated underwriting results in 2010 compared to the prior year, largely driven by increased catastrophe-related losses during the year.

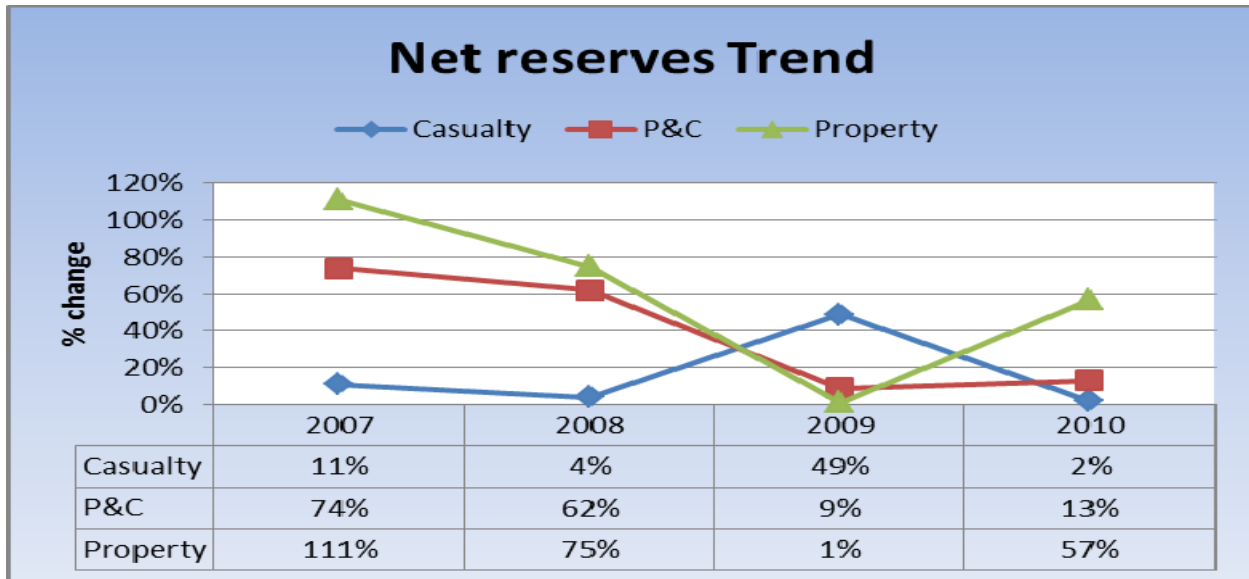
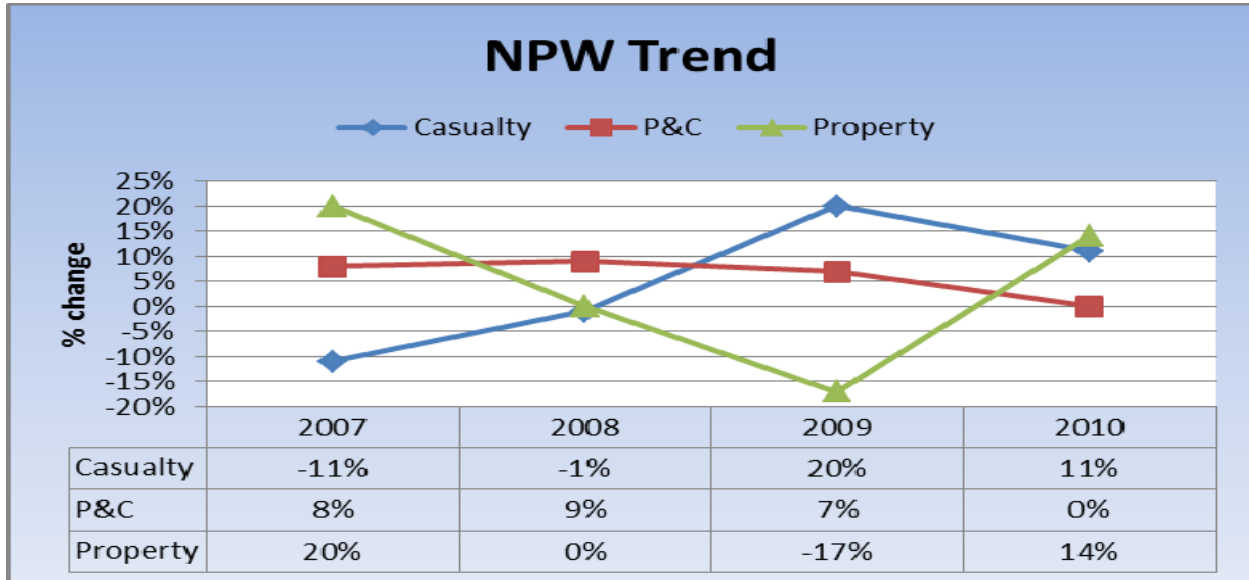
The overall decline in 2008 across all sectors in both capital and surplus and the associated return on equity was clearly the result of the financial crisis and the impact of natural catastrophes experienced in 2008.

The ratio of the (re)insurers' capital and surplus to total assets has remained fairly consistent over the years, despite a notable decline in 2010 for the property sector. As reflected on Exhibit 2.2.4, the property sector would generally have higher capital relative to total assets given its significantly higher exposure to catastrophe risk.

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Underwriting performance:

Exhibit 2.2.5: Net premiums written and net loss and loss expense provisions trend by sector

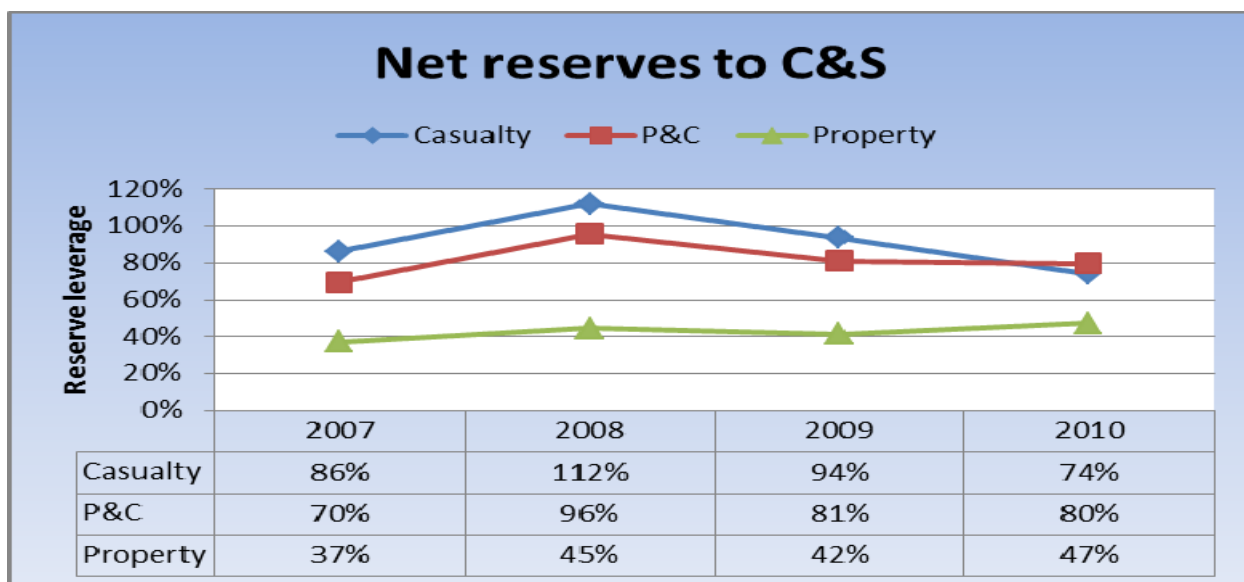
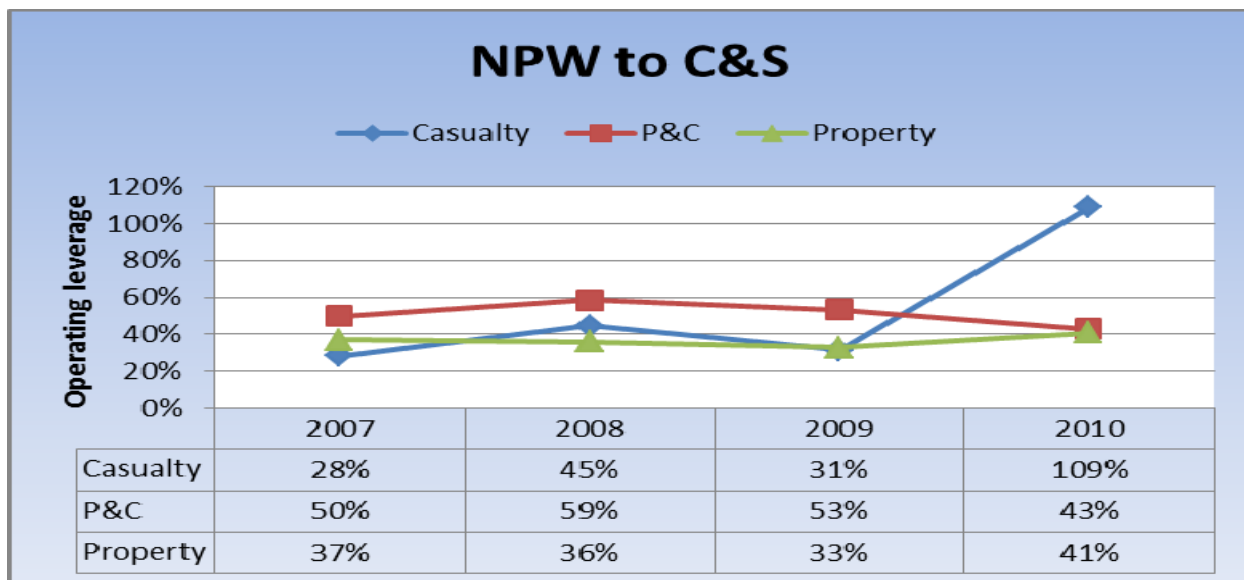


The volume of business written on a net basis has remained subdued and inconsistent over the last four years largely due to the persistent soft market conditions across all sectors. Pricing has remained under pressure over the period, with only marginal adjustments to premium rates observed on certain lines of business. While the economic environment has registered some recovery in last two years, the fundamentals have remained weak.

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The property sector however registered a moderate increase in net premiums in 2010 achieving a 14% growth on average. The increase could be attributed to new market opportunities and to a lesser extent relatively better premium rates driven by higher catastrophe-related losses experienced in 2010. This trend has continued to be observed in 2011 with June and July 2011 renewals bringing meaningful rate changes to regions affected by the significant catastrophe events of the first quarter of 2011.

Exhibit 2.2.6: Operating and reserve leverage by sector



Operating and reserve leverages reflected mixed results between the property and casualty sectors. As noted previously, operating leverage is a key indicator of the (re)insurers' ability to support existing business and future growth and a measure of the (re)insurers' financial strength, with a lower ratio being

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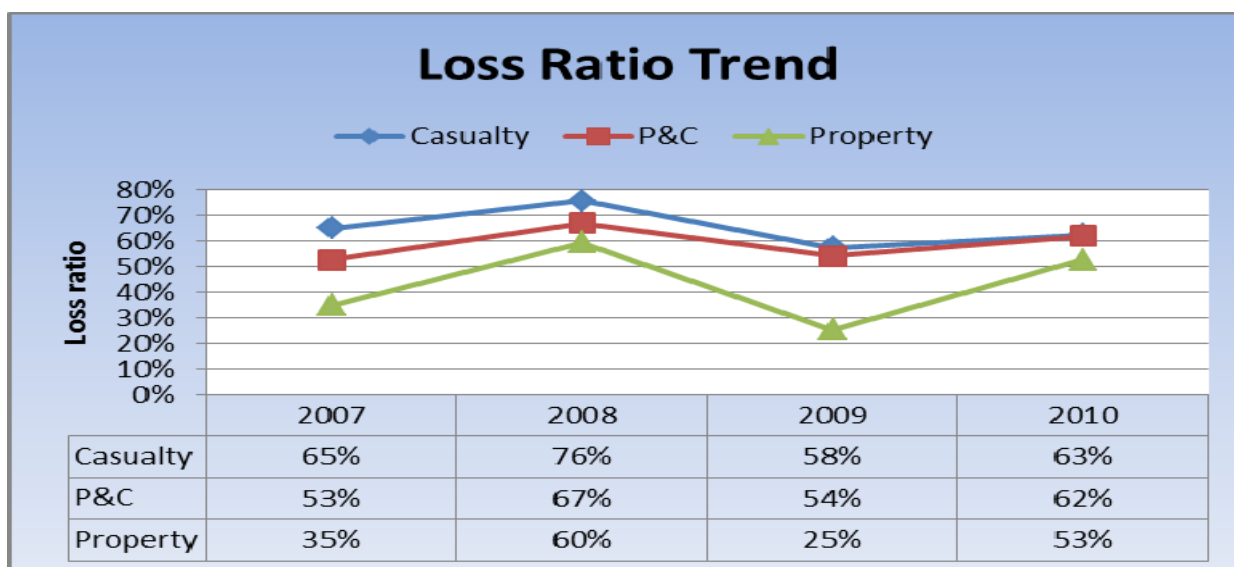
favourable. On the other hand, reserve leverage provides insight into the (re)insurers' ability to cover unanticipated reserve deficiencies, with a lower ratio being favourable generally speaking.

As shown on Exhibit 2.2.6, both operating and reserve leverage for the property sector increased in 2010 on the back of the 14% growth in the average net premiums written and 57% increase in average net reserves (Exhibit 2.2.5). The sector's average capital and surplus increased by 14% (Exhibit 2.2.4).

On the contrary, the operating leverage for the casualty sector increased considerably in 2010 although the sector's average capital and surplus increased by 8% and the net premiums written increased by 11%, while the reserve leverage for the casualty sector decreased in 2010. These fluctuations are largely a result of the inclusion of Class 3B (re)insurers in 2010, among them are the domestic health business writers which have very high premium undertakings relative to their capital levels.

As would be expected, the property sector reflects the lowest reserve leverage among all sectors over the years given the short tail nature of property business compared to casualty business.

Exhibit 2.2.7: Loss and combined ratios by sector



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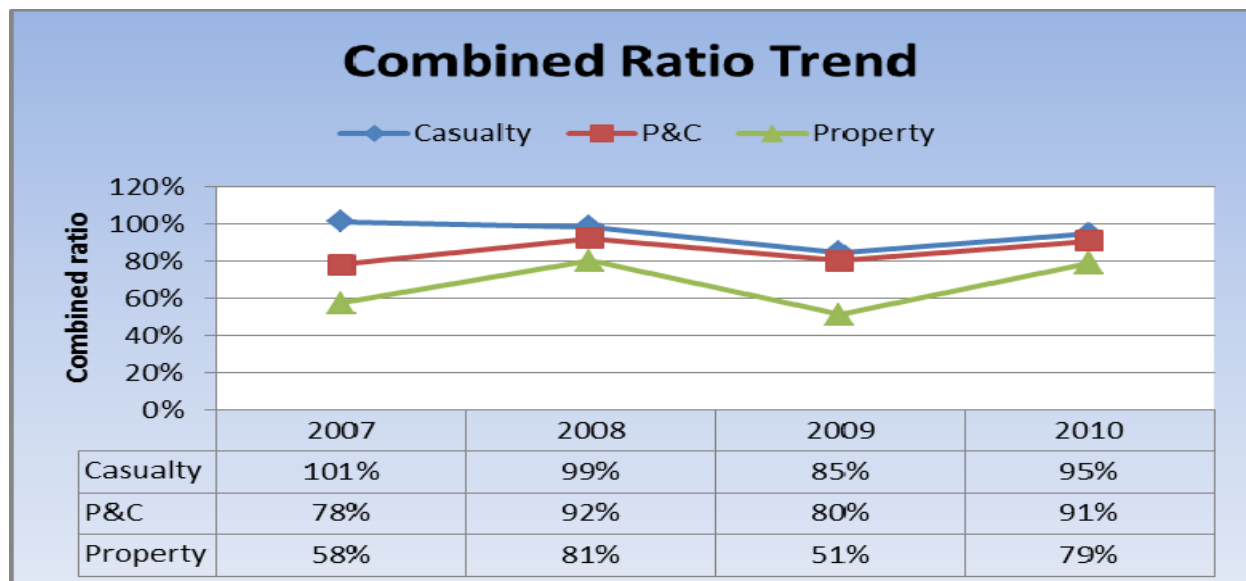


Exhibit 2.2.7 shows a significant decline in the overall underwriting profitability across all sectors with the loss and combined ratios increasing by significant margins in 2010.

The property sector registered an increase in the loss and combined ratios which could be attributed to significantly higher catastrophe-related losses experienced in 2010 compared to 2009; 2009 was characterised by a dearth of major catastrophic events.

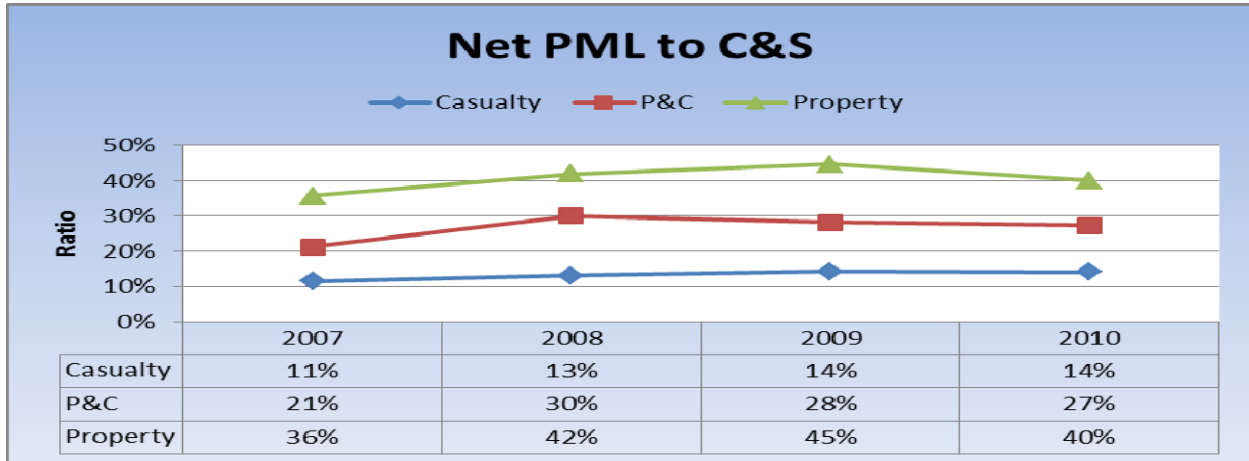
Three of the largest catastrophic events in 2010 occurred outside of the United States including major earthquakes in Chile and New Zealand, and Winter Storm Xynthia which generated insured losses estimated at US\$ 30 billion, US\$ 3.8 billion and US\$ 4.5 billion, respectively. While no major hurricanes made landfall in the United States in 2010, the losses arising from winter storms on the United States East Coast and large Midwest floods had an adverse impact on the (re)insurers' underwriting performance.

According to AON Benfield's Annual Global Climate and Catastrophe Report (Impact Forecasting – 2010), "global natural catastrophic activity in 2010 was far higher than the previous three years, with 314 separate events causing significant damage in various parts of the world. These 314 events, defined as natural meteorological and climatological occurrences that have caused a significant impact in terms of insurance claims, economic loss and/or fatalities or has had a large humanitarian effect, resulted in economic losses of US\$251.95 billion and insured losses of US\$37.95 billion. By comparison, 2009 tallied 222 events that combined to produce US\$58 billion in economic losses and US\$20 billion in insured losses".

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Catastrophe risk and stress scenarios:

Exhibit 2.2.8: Net Probable Maximum Loss (PML) to capital and surplus by sector



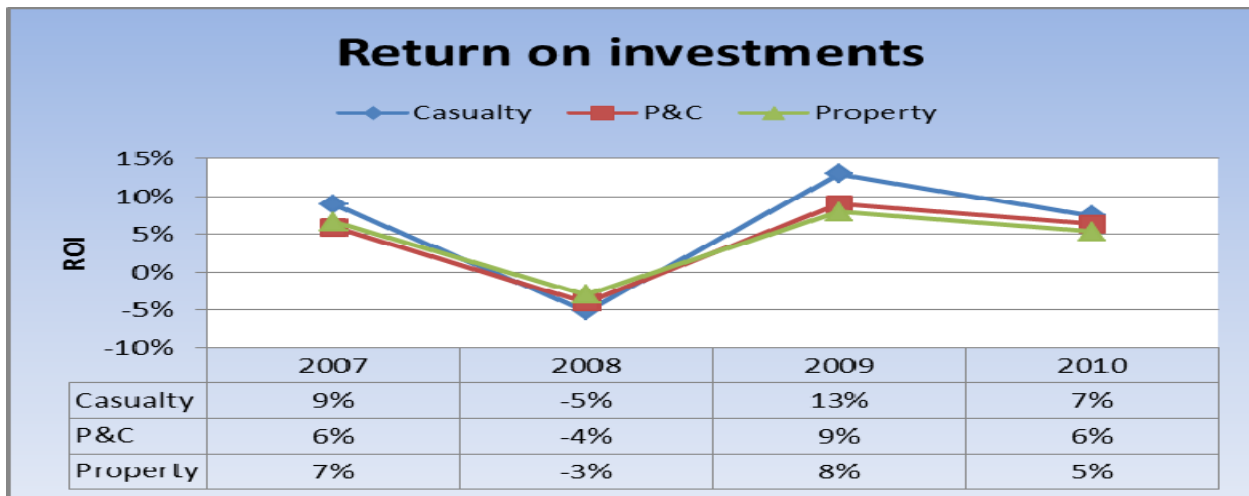
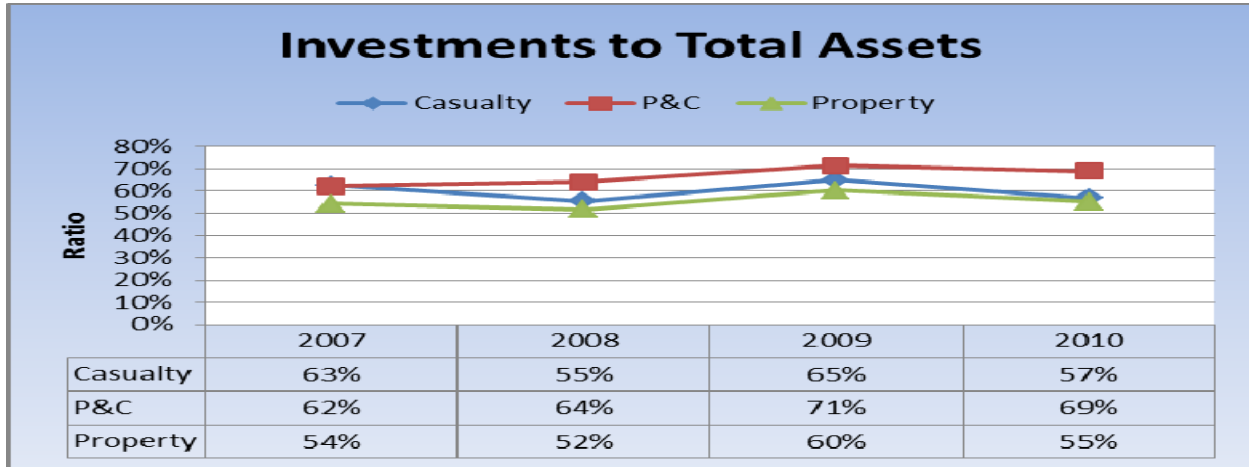
As discussed previously, catastrophe risk remains a major risk exposure for the Bermuda market and a key indicator of the exposure is the ratio of net PML to capital and surplus. As would be expected, the property sector reflects the highest ratio over the period with the casualty sector lagging well below.

Exhibit 2.2.8 above shows that in general the ratio net PML to capital and surplus declined across all sectors in 2010 with the largest decline registered under the property sector. The decline in the average net PML in the property sector in 2010 could largely be attributed to the inclusion of Class 3B (re)insurers which although have exposure to catastrophe business, on average, their exposure is generally lower than that of Class 4 (re)insurers; as a result the average net PML in 2010 declined.

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Investment performance:

Exhibit 2.2.9: Investment ratios by sector



As reflected in the Exhibit above, the investment portfolios (quoted and unquoted) across all sectors constitute a significant portion of the (re)insurers' balance sheet. In 2010 however, the ratio of investments to total assets declined across all sectors.

Despite the sluggish financial conditions that prevailed during the year, the market continued to benefit from realised and unrealised investment gains albeit being relatively lower than 2009. Further, lower return on investments across all sectors could also be attributed to the prevailing low interest rate environment which would have an adverse impact on interest income from fixed income securities which form the bulk of the investment portfolios for the (re)insurers.

3 Risk Outlook

3.1 Economic Conditions

The two-speed recovery continues, and downside risks to global growth remain elevated, with economic recovery in the United States (as the most important economy to Bermuda) lagging behind emerging countries. Global growth continues to be driven by emerging market economies, albeit at a slower pace over the second half of 2011 in response to some capital outflows and a downward correction of foreign exchange rates. Activity in advanced economies is projected to expand by 2½ percent in both 2011 and 2012, which is still sluggish considering the depth of the 2009 recession and might come under pressure if the euro area sovereign debt crisis causes another prolonged recession in the weaker Member States. In contrast, developing economies benefit from continued capital flows as a result of carry trades on low interest rates in most advanced economies, which helps mitigate global imbalances at the expense of potentially rising inflation in countries where monetary policy remains accommodative.

Growth remains subdued in advanced economies given the scant progress in addressing fiscal vulnerabilities given the renewed strains in the euro area periphery. Economic activity could become markedly more volatile if sovereign vulnerabilities and remaining pockets of financial sector weaknesses were to further delay the timely exit from extraordinarily accommodative monetary policy. Despite significant progress in private sector deleveraging, improved financial market functioning, and supportive policies, demand shocks (largely driven by austerity measures, cutbacks in private sector consumption, and a further retrenchment of credit) in current account deficit countries, such as the United States, have not been accompanied by higher productivity, which would help mitigate continued global imbalances. Other downside macro risks arise from rising oil and commodity prices, the continued weakness of the U.S. real estate market, and a possible reversal of capital flows as a result of overheating and potential for boom-bust cycles in emerging markets.

Sovereign risk has become a seriously destabilising factor in the restoration of financial stability. During the first half of 2011, the European sovereign debt crisis has further escalated, with financial sector distress worsening in countries with weak fundamentals and growing debt sustainability problems. Rising budget deficits (i.e., negative primary fiscal balances) in tandem with growing gross government indebtedness have created an unsustainable fiscal position of several countries in the European periphery, which forebodes debt pressures over the medium-term. Member States with relatively weak fiscal fundamentals (Greece, Ireland, Italy, Portugal, and Spain ('GIIPS')) have increasingly become a challenge for the euro area as these economies are likely to struggle due in part to the interest expense associated with their debt levels. Persistent fiscal risks and insufficient efforts to achieve sustainable

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budget positions have raised the specter of debt restructuring or even outright default in one or more Member States, leading to contagion, both within several affected countries and across borders.⁹

3.2 Capital Market Conditions

Capital market risks to global financial stability have substantially increased. While some improvements in macroeconomic performance and strong prospects for emerging market assets are supporting overall financial stability, global liquidity continues to be dependent on accommodative monetary policies, including quantitative easing in the United States. The rise in risk aversion since the summer has uncovered underlying vulnerabilities and shifted market focus on elevated credit risks from still large private and public debt burdens in advanced economies.

Overall capital market conditions have recently relapsed into crisis mode as sovereign debt concerns weigh heavily on risk appetite. The threat of a destabilising default scenario of Greece has resulted in capital market gyrations last seen in the wake of the Lehman Brothers collapse in September 2008. While markets largely expect that Greece will need to seek further external assistance in addition to the agreed 50 percent haircut on outstanding debt, there are risks of renewed negative shocks from other fiscally-challenged economies in the European periphery, such as Italy and Spain, which could result in an immediate liquidity crisis—these risks are exacerbated by continuing weakness of financial institutions and could spread to the core of Europe. Fiscal risks in the United States also remain high, with gross financing needs at nearly 30 percent of GDP, and one of the largest medium-term adjustment needs among advanced economies. In August, Standard & Poor’s downgraded U.S. long-term government debt to “AA” credit rating after having placed the country on a negative outlook only four months prior.¹⁰

Higher sovereign risk has raised the funding costs of several banks—with possible spillover effects on the real economy adding to existing fiscal pressures of many European governments. Since European banks can still rely on the ECB to stand behind them over the near term via a range of emergency facilities

⁹ As a sign of growing fragilities in debt markets, investors have shifted their attention from Spain and Italy to France after the ECB’s decision to start buying Spanish and Italian government bonds, which distorted fair market pricing.

¹⁰ On 5 August 2011, Standard & Poor’s downgraded the long-term sovereign credit rating of the United States one notch to “AA +” from “AAA” in response to insufficient debt-reduction measures and slowing economic growth. The other two main credit-rating agencies, Moody’s Investors Service (Moody’s) and Fitch Ratings (Fitch), did not take similar action but affirmed their credit ratings.

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(including the recently reopened six-month unlimited tender), there is little risk of a repeat of the liquidity crunch of 2008. However, the persistent closure of long-term funding markets to meet rollover demand of about €1.7 trillion (US\$2.4 trillion) until end-2013 raises the specter of a credit crunch. This might create a vicious feedback loop into the real economy as banks curtail credit to offset higher bad debt charges and higher funding costs reducing net interest earnings. This might also limit insurance companies' access to funding sources via contingent liquidity arrangements.

The corporate bond sector, with a few exceptions, remains relatively resilient, especially in light of persistent downward pressure on interest rates in the United States. The move by the U.S. Federal Reserve to keep interest rates artificially low until at least 2013 has had a favorable effect on credit markets. The yield curve has flattened, with long rates have dropped more than short rates.¹¹ Commodity prices have risen and remain highly volatile.

Equities are proving to be too risky in the current economic environment as more investors maintain a strong demand for sovereign debt. Despite their recent downgrade, U.S. government bonds still benefit from safe haven flows given their market size and liquidity as investors shed their equity holdings.¹² Without availability of a close substitute for U.S. government debt—similar markets are smaller in size and other large debt markets are burdened by sovereign risk concerns—this trend is likely to continue.

3.3 Insurance Outlook

Underwriting performance:

The outlook for the 2012 renewal season will be a function of the full loss experience of 2011, including the results of the 2011 hurricane season which has put considerable strain on the capital position of the sector to date. The high catastrophe-related losses sustained by the industry over the last three quarters of 2011 have already had some impact on pricing in the Bermuda market, with property catastrophe rates on line flat ('ROL') up to 10 percent and non-catastrophe lines experiencing downward pressures. In addition, the continued deterioration in macroeconomic conditions, and the integration of predictive catastrophe models into risk management programs are likely to result in a hardening of rates in business lines that have suffered catastrophe losses coupled with an increased demand for reinsurance cover.

¹¹ See <https://guidance.fidelity.com/viewpoints/after-downgrade-treasuries-rally>.

¹² See <http://www.ft.com/cms/s/0/16232716-c406-11e0-b302-00144feabdc0.html#axzz1V7fLqMP5>.

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Overall premium growth is expected to moderate while above-average losses from natural catastrophes have resulted in downward pressure on profitability. Earnings performance of the sector was adversely affected by large natural catastrophes, which have caused significant losses for P&C underwriters during the first half of 2011. Losses have already outstripped those observed in 2009, which decreased the industry's net income down 67% to US\$ 6.9 billion relative to the year before.¹³ The overall industry second quarter catastrophe losses for the United States totaled US\$ 27 billion, with underwriting losses of US\$ 22 billion compared to US\$ 2.5 billion in 2009.

So far, however, high capital levels have prevented consolidation, which would have otherwise allowed premium hardening. Thus, prices look set to stay broadly flat after a four-year decline as a result of fierce competition between well-capitalised reinsurers. Rate decreases are expected in classes of business not affected by large losses amid continued pricing challenges in areas that have suffered disasters during the first half of the year or in those areas that are currently considered at risk.¹⁴

Investment performance:

With investment performance coming under pressure, future reserve adjustments without the historical level of investment returns could result in greater volatility of earnings performance. Without the returns from traditional investments, which the industry has come to depend on, there is a material risk that the continuing low-rate environment could create incentives for insurers to invest in riskier assets. (In particular, casualty insurers are aware that inflation can lead to higher claims costs while higher investment income may offset the reduction in earnings.

Additionally, greater regulatory incentives to hold more low-yielding assets, such as sovereign bonds, combined with the low-interest rate environment could accentuate a developing search for yield in the remaining portion of the portfolio. This trend in investment performance, however, might reverse over the 2011 reporting period as insurers actually benefit from mark-to-market gains on fixed income investments over the short run; however, the investment cash inflows from net premium written on renewals will generate lower returns in an environment of continued low interest rates.

With rates continuing to soften and investment yields depressed, insurers are under pressure to find profitable areas for growth. An extended low interest rate environment in high-quality investments has the potential to entice some investors to assume greater investment risk in order to achieve their investment goals. This re-balancing of investment portfolios may effectively change the risk profile of large insurers

¹³ See <http://www3.ambest.com/ambv/bestnews/newscontent.aspx?refnum=151107&AltSrc=28>.

¹⁴ See <http://www.insurancetech.com/distribution/231602494>.

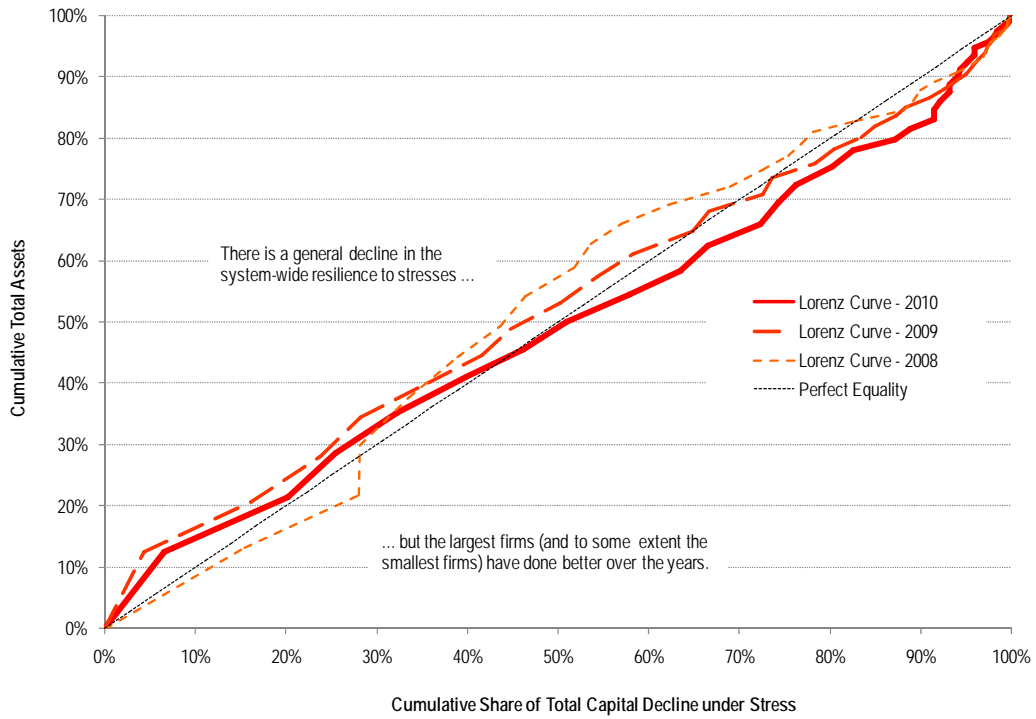
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and warrants enhanced supervisory attention going forward. This could be accentuated by fiscal dynamics in the United States, which is susceptible to sharp upward shifts or pivots in the yield curve, which will result in downward pressure on current long-term debt holdings of insurers, potentially offsetting current mark-to-market gains (due to safe haven flows). Also the potential for boom-bust cycles in emerging markets affecting greater risk-taking and duration mismatches in an environment of sudden yield curve steepening could become sources of concern.

Within the commercial insurer group, the smaller commercial firms appear to have become more susceptible to the economic stresses affecting their investment performance. Based on the standardised stress test results as part of the last BSCR filing, a system-wide assessment using a Lorenz curve approach (see Exhibit 3.3.1) suggests that there has been a general decline in the system-wide resilience to economic stresses over the last three years (as indicated by a general downward shift of the curve at a cumulative share of total assets of about 25% and higher, i.e., with the exception of the top quartile of Class 4 and 3B firms by assets, under economic stress, firms would experience a capital loss that is more proportionate to their relative size). While there is also greater consistency between the marginal change in the magnitude of economic shock and the size of a firm across the sample (as indicated by a closer alignment of the Lorenz curve to the line of “perfect equality”), the impact on the severity of economic stress on the largest insurance companies has increased since 2009.

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Exhibit 3.3.1: Bermuda Class 4 Companies – Lorenz Curves of Economic Stress Scenarios, 2006-2010.



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Appendix A – Glossary

Attritional Losses	As prescribed by the Order.
Capital & Surplus (“C&S”)	As disclosed on the Statutory Balance Sheet, Form 1A, Line 40.
Capital & Surplus To Total Assets	Calculated as the capital and surplus (Form 1A, Line 40) to total assets (Form 1A, Line 15).
Capital & Surplus Trend (“C&S Trend”)	Calculated as the current year’s capital & surplus less the prior year’s capital & surplus divided by the prior year’s capital & surplus.
Casualty Non-Proportional LOB Grouping	Include personal accident non-proportional (Line 5), credit/surety non-proportional (Line 9), U.S. casualty non-proportional (Line 13), U.S. professional non-proportional (Line 15), U.S. specialty non-proportional (Line 17), and international casualty non-motor non-proportional (Line 21) as prescribed by the Order.
Casualty Proportional LOB Grouping	Include personal accident (Line 4), credit/surety (Line 8), U.S. casualty (Line 12), U.S. professional (Line 14), U.S. specialty (Line 16), international casualty non-motor (Line 20), structured/finite reinsurance (Line 23) and health (Line 24) as prescribed by the Order.
Combined Ratio	Calculated as the sum of expense ratio and loss ratio.
ECR	Enhanced Capital Requirement as prescribed by the Order.
ECR Ratio	Calculated as the available statutory capital and surplus divided by the ECR.
Expense Ratio	Calculated as the sum of the commissions and brokerage (Form 2A, Line 9), the general and administrative expenses (Form 2A, Line 10), the personnel costs (Form 2A, Line 11) and other expenses (Form 2A, Line 12) divided by the net premiums written (Form 2A, Line 3).
Form 1A	The Statutory Balance Sheet as prescribed by the Insurance Accounts Regulations 1980.
Liquid Assets	Calculated as the sum of the cash (Form 1A, Line 1), the quoted investments (Form 1A, Line 2(f)), the investment income due and accrued (Form 1A, Line 9), the accounts and premiums receivable (Form 1A, Line 10), and the reinsurance balances receivable (Form 1A, Line 11).
Liquid Assets To Net Loss And Loss Expense Provisions	Calculated as the liquid assets divided by net loss and loss expense provisions.
Liquid Assets To Net PML	Calculated as the liquid assets divided by net PML.
Liquid Assets To Net PML And Attritional Losses	Calculated as the liquid assets divided by net PML and attritional losses.
Liquid Assets To Total Liabilities	Calculated as the liquid assets to total liabilities.
LOB	The statutory lines of business as prescribed by the Order.
Loss Ratio	Calculated as net losses incurred and net loss expenses incurred (Form 2A, Line 8) divided by net premiums earned (Form 2A, Line 5).
MSM	The Minimum Margin of Solvency as prescribed by the Insurance Act 1978.
Net Income	As disclosed on the Statutory Statement of Income, Form 2A, Line 42.
Net Loss and Loss Expense Provisions	As disclosed on the Statutory Balance Sheet, Form 1A, Line 17(d).
Net Loss and Loss Expense Provisions Trend	Calculated as the current year’s net loss and loss expense provisions less the prior year’s net loss and loss expense provisions divided by the prior year’s net loss and loss expense provisions.
Net PML	The net probable maximum loss as prescribed by the Order.
Net Premiums Written (“NPW”)	As disclosed on the Statutory Statement of Income, Form 2A, Line 3.
Net Premiums Written Trend (“NPW Trend”)	Calculated as the current year’s NPW less the prior year’s NPW divided by the prior year’s NPW.
Operating Leverage	Calculated as the net premiums written divided by the capital and surplus.
Property Catastrophe LOB	LOB Line 1 as prescribed by the Order.
Probable Maximum Loss (“PML”)	Based on Company CAT models; probable maximum loss is the anticipated maximum loss that can occur with a certain level of probability. The BSCR utilises a probable maximum natural catastrophe loss at a 99% Tail-Value-at-Risk level for annual aggregate exposure to all related risks and all perils, including reinstatement premiums.
Property Non-Proportional LOB Grouping	Include property non-proportional (Line 3), aviation non-proportional (Line 7), energy off-shore/marine non-proportional (Line 11), and international motor non-proportional (Line 19) prescribed by the Order.
Property Proportional LOB Grouping	Include property (Line 2), aviation (Line 6), energy off-shore/marine (Line 10), international motor (Line 18), and retro property (Line 22) as prescribed by the Order.
Reserve Leverage	Calculated as the net loss and loss expense provisions divided by the capital and surplus.
Return On Equity	Calculated as the net income divided by the capital and surplus.
Return On Investments	Calculated as the sum of the general business investment income- net (Form 2A, Line 17), the realised

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	gains (losses) (Form 2A, Line 41) and the change in unrealised appreciation/depreciation of investments (Form 8, Line 2(d)) divided by the total investments.
Risk Distribution – FI	Stands for ‘fixed income investment risk’.
Risk Distribution – Eq	Stands for ‘equity investment risk’.
Risk Distribution – Int	Stands for ‘interest rate/liquidity risk’.
Risk Distribution – Pre	Stands for ‘premium risk’.
Risk Distribution – Rer	Stands for ‘reserve risk’.
Risk Distribution - Cre	Stands for ‘credit risk’.
Risk Distribution – Cat	Stands for ‘catastrophe risk’.
Risk Distribution - Op	Stands for ‘operational risk’.
Stress/Scenario	See Appendix B.
The Order	The Insurance (Prudential Standards) (Class 4 Solvency Requirement) Order 2008.
Total Assets	As disclosed on the Statutory Balance Sheet, Form 1A, Line 15.
Total Investments	Calculated as the Statutory Balance Sheet, Form 1A, aggregate of Lines 2(f) and 3(f).
Total Investments To Total Assets	Calculated as the total investments divided by total assets.
Total Liabilities	As disclosed on the Statutory Balance Sheet, Form 1A, Line 39.

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Appendix B – Stress Scenarios and Exposure Territories

Economic Scenarios

- R1 40 percent decline in equity prices internationally
- R2 Widening of credit spreads from 40bps to 150bps
- R3 Combined R1 and R2

Underwriting Loss Scenarios

U.S. Windstorm

- UW1 Northeast Hurricane
- UW2 Carolinas Hurricane
- UW3 Miami-Dade Hurricane
- UW4 Pinellas Hurricane
- UW5 Gulf Windstorm (onshore)
- UW6 Gulf Windstorm (offshore)

U.S. Earthquake

- UE1 Los Angeles Earthquake
- UE2 San Francisco Earthquake
- UE3 New Madrid (NM) RDS
- UE4 NM Extreme Stress Scenario

Non-U.S. Earthquake

- IE1 Japanese Earthquake

Non-U.S. Windstorm

- IW1 European Windstorm
- IW2 Japanese Typhoon

Aerospace/Aviation Event

- A1 Aerospace /Aviation

Marine Event

- M1 Marine Collision in Prince William Sound
- M2 Major Cruise Vessel Incident

Worst-Case Annual Aggregate Loss Scenario

1. Company specific scenario; and
2. Either Series of loss simulations or Economic scenario (R3) and three largest underwriting scenarios

Exposure Territories

Zone Territories

- 1 Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, New Jersey, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia, the District of Columbia, Alabama, Arkansas, Louisiana, Mississippi, Texas, Florida, Georgia, North Carolina, and South Carolina
- 2 Caribbean
- 3 Arizona, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Montana, Minnesota, Missouri, Nebraska, Nevada, New Mexico, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, Utah, Wisconsin, and Wyoming
- 4 California
- 5 Oregon, Washington
- 6 Hawaii
- 7 Canada, Alaska
- 8 United Kingdom, Continental Europe
- 9 Australia / New Zealand
- 10 Japan
- 11 Nationwide covers
- 12 Worldwide covers
- 13 All exposures not included in Zones 1 to 12

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Appendix C – Statutory Lines of Business

Schedule of Premiums Written by Lines of Business

Line #	Statutory Line
1	Property Catastrophe
2	Property
3	Property Non-Proportional
4	Personal Accident
5	Personal Accident Non-Proportional
6	Aviation
7	Aviation Non-Proportional
8	Credit / Surety
9	Credit / Surety Non-Proportional
10	Energy Offshore / Marine
11	Energy Offshore / Marine Non-Proportional
12	US Casualty
13	US Casualty Non-Proportional
14	US Professional
15	US Professional Non-Proportional
16	US Specialty
17	US Specialty Non-Proportional
18	International Motor
19	International Motor Non-Proportional
20	International Casualty Non-Motor
21	International Casualty Non-Motor Non-Proportional
22	Retro Property
23	Structured / Finite Reinsurance
24	Health