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RM 790
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Draft I

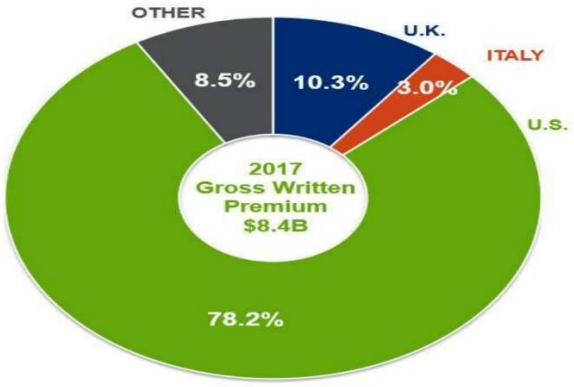
The objective of this project is to assess the Solvency Capital Requirement (SCR) to support AmTrust Financial Services, Inc.'s $3.28B portfolio of invested assets – ignoring offset from technical provision, such as liability offset: under the capital adequacy and risk management framework dictated by Solvency II.

SCR sets a fairly conservative benchmark for the capital required to support operations and performance obligations – as well as providing a middle-ground for stakeholders to interpret; and corporations to convey company operational and investing risk profile.

By understanding SCR dictated by Solvency II, stakeholders have a sound foothold in achieving a grasp of overall investment strategy and governance. Similarly, by understanding the reserved capital requirement under Solvency II, AmTrust Financial Services Inc. can make informed, data-driven decisions about its invested asset holding strategy.

Furthermore, an assessment of the capital required to support AmTrust's portfolio of invested assets under Solvency II proves useful in governing and monitoring the risk assumed by the portfolio and ensuring that the portfolio adheres to the company risk profile. Additionally, the company is required to maintain a level of capital reserves appropriate to the expectation of loss in a case of emergency dictated by the regulatory requirements of Solvency II – AmTrust Financial services has a presence in several international markets, including Europe; and thus it follows that compliance with the regulations of Solvency II for each of its subsidiaries within jurisdiction is an essential responsibility attributing to governance.

Investor Presentation AmTrust Financial Services, Inc. – May 2018 [1]



Overall, Solvency II plays a crucial role in AmTrust Financial Services, Inc.'s regulatory governance framework, particularly with regards to capital assessment and risk management. The company's compliance with its regulations helps to ensure solvency and financial stability. Precise and easily-understandable communication of the company's compliance with its capital requirements and the company's discretion with regards to the capital reserved within portfolio will put stakeholders at ease and in synergy with the company's vision. Understanding the appropriate capital required to support the company's portfolio of invested assets and being able to communicate the company's strategic choices to withstand the event of catastrophe is essential for maintaining its reputation and financial performance in the insurance industry.

AmTrust Financial Services, Inc. offers a range of insurance products, including workers' compensation insurance, extended warranty coverage, and other specialty risk insurance coverages. AmTrust's carriers offer coverages for workers' compensation, statutory disability benefits, property and casualty insurance, commercial automobile insurance, and nonprofit insurance in various states. The carriers include Wesco Insurance Company, Security National Insurance Company, Associated Industries Insurance Company, Rochdale Insurance, Technology Insurance Company, Sequoia Insurance Company, ARI Insurance Company, First Nonprofit Insurance Company, Milford Casualty Insurance Company, Republic Underwriters Insurance Company, Republic-Vanguard Insurance Company, Southern County Mutual Insurance Company, Southern Insurance Company, and Developers Surety and Indemnity Company [2].

Investor Presentation AmTrust Financial Services, Inc. – May 2018 [1]

The company's workers' compensation insurance provides coverage for workplace injuries and illnesses, and is available in all 50 states in the U.S. AmTrust's extended warranty coverage protects consumers from the cost of replacement or repair of vehicles, appliances, and other consumer goods and is designed to help its customers maintain profitability and build customer loyalty; "We are a leading writer of workers' compensation insurance in the United States, with a focus on small to mid-sized employers primarily in low to medium hazard industry groups,.., Our Warranty Solutions segment is a leading provider of extended service and warranty coverage for consumer and commercial goods and vehicles". [3]

Percentage of Aggregate Small Commercial Business Direct Written Premiums by State

	Year Ended December 31,		
State	**2017**	**2016**	**2015**
California	22.6%	23.1%	24.2%
New York	16.2	17.7	18.7
Texas	10.6	8.9	2.9
Florida	9.5	9.3	11.7
New Jersey	7.2	7.4	7.2
Georgia	3.7	3.5	4.0
Illinois	3.6	4.2	4.6
Pennsylvania	3.3	2.1	2.5
Louisiana	2.9	2.6	1.5
Arizona	1.6	1.3	1.4
All Other States and the District of Columbia	18.8	19.9	21.3
Total	100.0%	100.0%	100.0%

AmTrust Financial Services, Inc. 10K Filing with the SEC, 2017 [3]

AmTrust's specialty risk insurance coverages are designed to meet the unique needs of various industries, including construction, healthcare, technology, and transportation. The company offers a broad range of specialty risk insurance products, including commercial property, general liability, professional liability, and cyber liability insurance. AmTrust also provides reinsurance services to insurance companies, allowing them to transfer a portion of their risk to the company. The company's reinsurance services help insurance companies manage their risk exposure and reduce their capital requirements; “Our Specialty Risk and Extended Warranty segment is one of the world's largest underwriters of insurance for extended warranty and service contracts and provides coverage for niche consumer and commercial markets” [1].

AmTrust Financial Services, Inc. also offers a range of commercial insurance products that are tailored to meet the unique needs of businesses across various industries, including construction, healthcare, technology, transportation, non-profit, and small businesses across the United States, collaborating with local agents to provide customized insurance coverage and service to small businesses across the country; focusing on underserved markets in areas of small commercial business, specialty risk, and extended warranty, and specialty programs. AmTrust's preferred exposures for the healthcare industry include private practitioners, dentists, nutritionists, physical therapists, and more [2] Business Insurance for the Healthcare Industry.

Small Commercial Business

(Amounts in Thousands, except percentages)	Year Ended December 31, 2017 Amount	2017 % of Net Earned Premiums	2016 Amount	2016 % of Net Earned Premiums
Net Earned Premiums:				
Warranty	$ 970,673	48.3%	$ 748,946	48.5%
Other liabilities	176,655	8.8	140,256	9.1
Commercial auto and liability, physical damage	—	—	40,388	2.6
Medical malpractice	206,622	10.3	233,136	15.1
Other	655,811	32.6	381,173	24.7
Total net earned premiums	$ 2,009,761	100.0%	$ 1,543,899	100.0%
Segment underwriting (loss) income [1]	$ (185,894)		$ 147,982	
Combined ratio [2]	109.2%		90.4%	

AmTrust Financial Services, Inc. 10K Filing with the SEC, 2017 [3]

According to the company's 10K report, AFSI Sales saw a decrease in reported revenue by 0% in Q0 compared to a revenue increase of 0% reported by its competitors in the same quarter [4] Comparisons to its Competitors and Market Share - CSIMarket. The report also states that the insurance industry is highly competitive and AFSI competes with over 100 insurance companies, targeting niche sectors and clients where they have particular expertise and provide differentiated offerings compared to their competitors.

AmTrust Financial Services, Inc. vs. its Competitors – CSIMarket [4]

The company's competitive advantages include their efficient underwriting and claims management practices, and lower processing costs – with an A.M. Best rating of "A-". AFSI faces significant competition from internationally well-known insurers that have greater financial, marketing, and management resources and experience; however. The company believes that their niche markets in the Specialty Risk and Extended Warranty sector in which they operate are less competitive than most other insurance sectors.

Overall, AmTrust Financial Services, Inc. offers a comprehensive approach to insurance products that are tailored to meet the unique needs of businesses across various industries. The company's focus on underserved markets and efficient practices provides them with a competitive edge in the industry.

Small Commercial Business

	Year Ended December 31,	
(Amounts in Thousands)	2017	2016
Small Commercial Business	$ 2,306,660	$ 2,203,469
Specialty Risk and Extended Warranty	2,009,761	1,543,899
Specialty Program	739,677	920,597
Total	$ 5,056,098	$ 4,667,965

AmTrust Financial Services, Inc. 10K Filing with the SEC, 2017 [3]

	Year Ended December 31,			
	2017		2016	
(Amounts in Thousands, except percentages)	Amount	% of Net Earned Premiums	Amount	% of Net Earned Premiums
Net Earned Premiums:				
Workers' compensation	$ 1,409,947	61.1%	$ 1,421,744	64.5%
Warranty	—	—	10,614	0.5
Other liabilities	—	—	22,273	1.0
Commercial auto and liability, physical damage	396,245	17.2	362,774	16.5
Other	500,468	21.7	386,064	17.5
Total net earned premiums	$ 2,306,660	100.0%	$ 2,203,469	100.0%
Segment underwriting (loss) income (1)	$ (226,058)		$ 150,397	
Combined ratio (2)	109.8%		93.2%	

Subsequently, AmTrust Financial Services, Inc. is inherently exposed to various risks such as underwriting risk, credit risk, market risk – including the markets which the company possess invested asset holdings in, and operational risk. The company's risk profile is influenced by several factors, including the nature and scope of its insurance products, the economic and regulatory environment, and the industry’s competitive landscape.

In terms of underwriting risk, AmTrust Financial Services, Inc. is especially exposed to potential losses due to the occurrence of insured events. In assessing capital requirement, the company can manage this risk to ensure adequate reserves are made by stress testing modeling techniques, and adhering to underwriting guidelines and risk selection criteria. Credit risk is another significant risk faced by the company, as it relies on the creditworthiness of its reinsurers and counterparties. Similarly, AmTrust Financial Services, Inc. can manage credit risk by monitoring the financial strength of reinsurers and placing limits on its exposure to any one

reinsurer. Market risk is a significant risk exposure faced by the company, as well – potential fluctuations in interest rates, equity prices, and foreign exchange rates can have adverse effects on its portfolio; AmTrust Financial Services, Inc. must therefore manage this risk through strategic asset allocation and investment guidelines, such as Solvency II Finally, the company must prepare provisions for potential operational risk losses due to inadequate or failed processes, systems, or people. Various measures to manage operational risk including internal controls, disaster recovery plans, and business continuity planning must be implemented.

Overall, while AmTrust Financial Services, Inc. is exposed to various risks associated with the insurance industry – while the probability of the realization of the risks the company faces can be mitigated, reserving capital for the event of disaster is one way to ensure solvency is an inherent requirement.

According to Investing.com: as of October 28, 2021 - AFSIB has a P/B ratio of -0.91 suggesting that the company could be undervalued, and there may be potential for future growth.

According to the 10-K report, AmTrust Financial Services, Inc.'s loss ratio was .808, suggesting that the company was likely writing aggressive premiums to win market share, especially considering their expense ratio of .321, which suggests that they were investing heavily into their operations – which coincides with the possibility that AmTrust was trying to win market share.

Small Commercial Business Segment — Results of Operations

Selected Insurance Ratios and Operating Information:					
Loss ratio [4]	80.8 %	67.3%	66.8%	66.5%	67.0%
Expense ratio [5]	32.1 %	26.4%	24.8%	24.8%	24.2%
Combined ratio [6]	112.9 %	93.7%	91.6%	91.3%	91.2%
Return on equity [7]	(17.9)%	15.8%	21.8%	28.3%	20.6%

AmTrust Financial Services, Inc. 10K Filing with the SEC, 2017 [3]

Furthermore, according to the 10-K report, the company's reserve to assets leverage ratio was 0.28, indicating that the company was prepared to take losses on their premiums, given the relatively high level of reserves relative to its assets, which balances the losses on premiums. The P/E ratio of approximately 1.54, which is a reasonable rate of the company's premiums earned relative to the company's equity.

AmTrust Financial Services Inc. had a Moody's corporate family rating of B3 and a probability of default rating of B3-PD as of July 2022. The ratings reflect the company's challenges in maintaining underwriting profitability in a competitive insurance market, as well as its exposure to low-frequency, high-severity claims in its workers' compensation and extended warranty businesses. The ratings also reflect the company's solid balance sheet, however which is supported by its strong reserve adequacy and conservative investment portfolio.

A.M. Best has provided ratings and analysis on AmTrust Financial Services Inc. since 2016. As of August 2022, the company had a financial strength rating of A- (Excellent) and an issuer credit rating of "a-". The ratings reflect the company's strong balance sheet strength, favorable operating performance, and diversified business profile, as well as its experienced management team and effective risk management practices.

Financial Strength Rating	View Definition
Rating:	A- (Excellent)
Affiliation Code:	g (Group Rating)
Financial Size Category:	XV ($2 Billion or Greater)
Outlook:	Stable
Action:	Affirmed
Effective Date:	August 31, 2022
Initial Rating Date:	June 8, 2007

Long-Term Issuer Credit Rating	View Definition
Long-Term:	a-
Outlook:	Stable
Action:	Affirmed
Effective Date:	August 31, 2022
Initial Rating Date:	June 8, 2007

(i) Denotes Indicative Rating

u Denotes Under Review Rating

pca Best's Preliminary Credit Assessment is an independent opinion on the relative general credit strengths and weaknesses of an issuer, obligor, security, or a proposed transaction or financing structure primarily based on business plans, term sheets, and AM Best's expectations relative to the execution of such business plans. AM Best does not define a PCA as a Credit Rating; however, the assessment is expressed using the existing Best's Credit Rating scales.

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	United States
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Director :	Erik Miller

AmTrust Title Insurance Company - AM Best Rating [5]

Lastly, AmTrust is performing well relative to it's competitors, financially. The graphic below shows that although it's revenue underperforms peers, it's income moderately outperforms its peers, and its net margin significantly outperforms it peers – which justifies their high loss ratio.

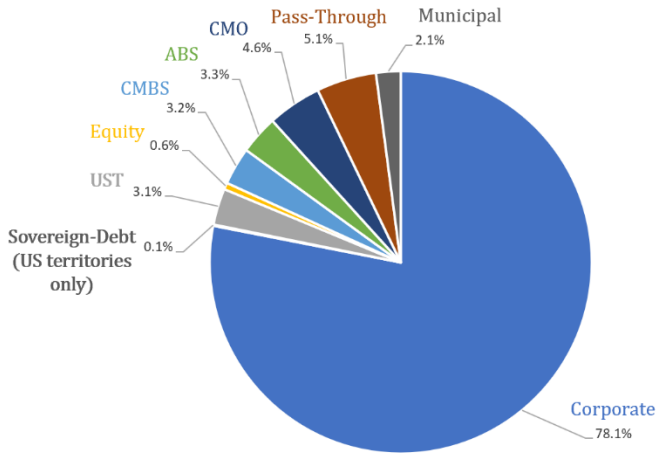
COMPANY NAME		TICKER	REVENUE	NET INCOME	NET MARGIN	CASH FLOW
	0 Q	AFSI	2,273.30	675.90	29.73 %	0.00
Berkshire Hathaway Inc	3 Q	BRKA	76,934.00	-2,588.00	-	57,482.00
Metlife Inc	3 Q	MET	22,270.00	400.00	1.8 %	1,652.00
American International Group Inc	3 Q	AIG	14,602.00	3,041.00	20.83 %	-301.00
Progressive Corp	4 Q	PGR	13,469.80	826.40	6.14 %	-144.40
Allstate Corp	3 Q	ALL	13,208.00	-683.00	-	20.00
W R Berkley Corp	4 Q	WRB	11,166.50	381.98	3.42 %	318.60
Travelers Companies inc	3 Q	TRV	9,303.00	454.00	4.88 %	63.00
The Hartford Financial Services Group Inc	3 Q	HIG	5,580.00	333.00	5.97 %	-31.00
Markel Corporation	4 Q	MKL	4,210.75	709.57	16.85 %	425.65
Loews Corp	4 Q	L	3,793.00	388.00	10.23 %	-354.00
Arch Capital Group Ltd	4 Q	ACGL	3,071.89	862.79	28.09 %	15.00
Assurant Inc	4 Q	AIZ	2,652.80	71.60	2.7 %	106.90
Aspen Insurance Holdings Limited	4 Q	AHLPRC	2,628.90	29.80	1.13 %	716.80
Alleghany Corp	2 Q	Y	2,596.89	-123.89	-	-51.54
Old Republic International Corporation	3 Q	ORI	1,721.00	-91.70	-	1.60

AmTrust Financial Services, Inc. vs. its Competitors – CSIMarket [4]

According to AmTrust Financial Q3 2013 Investor Presentation, AmTrust Financial Services, Inc.'s portfolio of invested assets is valued at $3.8B. According to the subsidiary holding portfolio I've compiled, it is valued at $5.8B and primarily consists of fixed maturity securities, which are generally investment-grade securities issued by corporations, governments, or government agencies. The company's investment strategy is focused on generating consistent, long-term investment returns while maintaining a high degree of liquidity and minimizing credit risk. Overall, AmTrust Financial Services, Inc. maintains a well-diversified portfolio of invested assets that is designed to generate consistent, long-term investment returns while minimizing risk. Its risk-averse portfolio is well-aligned with its aggressive operational risk profile.

Invested Asset Portfolio

Bond Type	Total Market Value ($)	% of Portfolio
Risky Bonds	$ 5,414,326,939.00	93.4%
Government Bonds	$ 227,785,407.00	3.9%
Equity	$ 32,684,705.00	0.6%
Municipal Bonds	$ 120,325,870.00	2.1%
Total	$ 5,795,122,921.00	100.0%



All in all, AmTrust Financial Services Inc. should primarily be concerned with its capital reserves for solvency, its underwriting risk, and its compliance with insurance laws and regulations. Since it is fairly clear that AmTrust is aggressively assuming underwriting risk, AmTrust will have to pay close attention to their capital reserves in order to ensure solvency, but also to ensure they are not overconservative – too large of a capital reserve will retard their profitability and reserve; conversely, too small of a capital reserve will put AmTrust at risk of failure to fulfill performance obligations to policy holders. Furthermore, AmTrust must comply with various state and federal laws and regulations related to insurance, including licensing, marketing, underwriting, and claims handling due to the fact that they operate in all 50 states of the United States as well as operating in Europe.

Solvency II is a comprehensive regulatory framework for insurance companies in the European Union (EU) that seek to harmonize risk management and solvency requirements and aim to ensure the financial stability of the insurance industry to protect policyholders. Additionally, Solvency II encourages insurers like AmTrust to adopt a more risk-based approach to pricing and underwriting.

The framework is built upon three interconnected pillars, which cover quantitative capital requirements (***Pillar I***): including the calculation of the Solvency Capital Requirement (**SCR**) and Minimum Capital Requirement (**MCR**); qualitative aspects of risk management and supervisory review (***Pillar II***): including the Own Risk and Solvency Assessment (**ORSA**); and reporting and disclosure and transparency requirements. (***Pillar III***) Each pillar plays a vital role in ensuring the financial stability of insurers and the protection of policyholders.

Pillar I: Quantitative Capital Requirements

SCR is designed to ensure that a company has sufficient capital to cover severe but plausible losses such that the company will remain solvent across a sample space of potential unexpected losses over a one-year period within at least a 99.5% confidence interval. The capital required and confidence level is computed and determined using the standard formula prescribed by the Solvency II Directive, which can be tailored to the specific risk profile of an individual insurer. The standard formula prescribed by the Solvency II Directive for calculating the Solvency Capital Requirement (SCR) is a risk-based approach that considers various types of risks an insurer faces.

This means that the company must be more selective in the risks it underwrites, ensuring that it prices policies appropriately to reflect the underlying risk. By doing so, AmTrust can improve its overall risk profile, which in turn can lead to lower SCR requirements and a more stable financial position. Compliance with SCR and MCR requirements ensures that AmTrust maintains a stable financial position and protects its policyholders. Additionally, by adopting a risk-based approach to underwriting and pricing, AmTrust can optimize its risk profile and improve its overall financial performance.

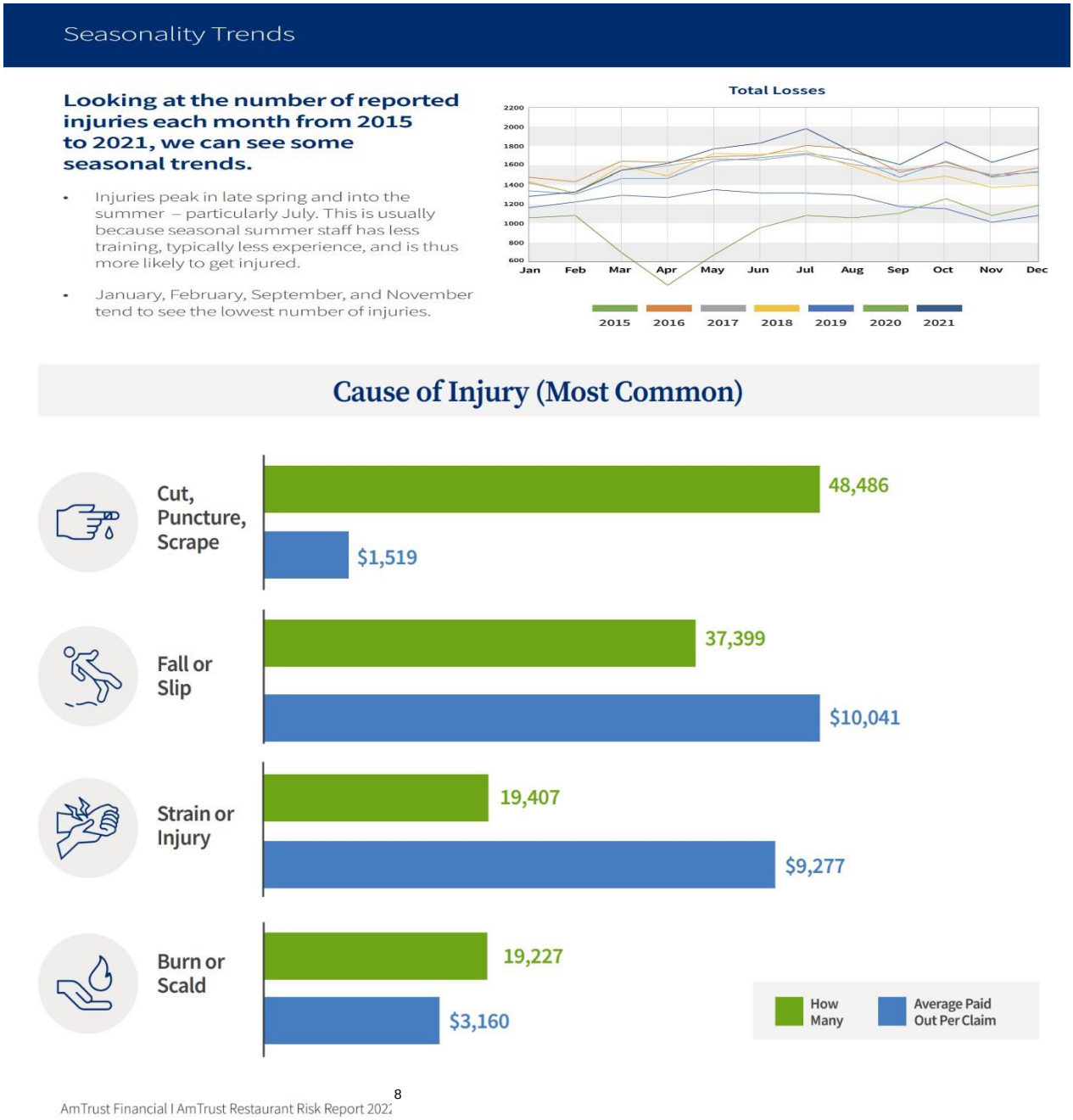
The formula aggregates these risks to estimate the overall capital requirement, aiming to practically cover potential losses in the event of a financial catastrophe. To calculate the Solvency Capital Requirement (SCR) using the standard formula, each risk module is quantified separately, and then the risk modules are aggregated to derive the total SCR. The framework is laid out as follows:

1. Quantification of risk modules

Each risk module is quantified using specific calculations that take into account various risk factors and stress scenarios relevant to the respective module as follows:

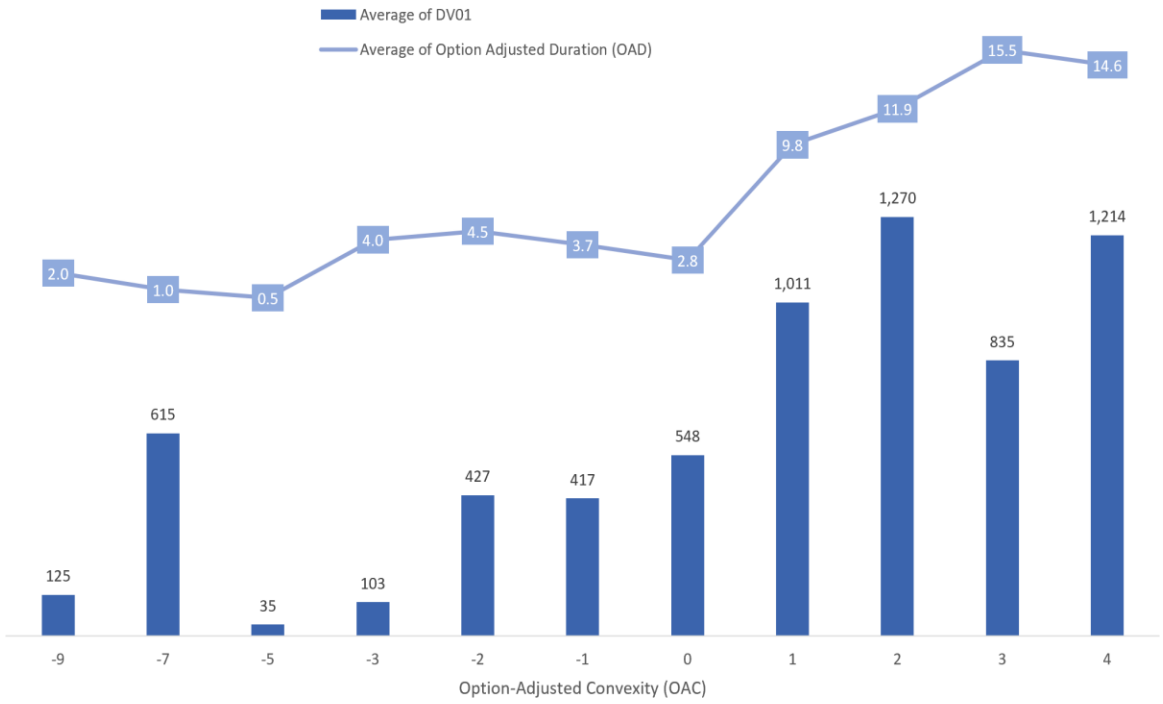
Underwriting risk

For each of the sub-modules (non-life, life, and health), the risk charges are calculated based on exposure to various risks, such as premium risk, reserve risk, mortality risk, longevity risk, etc. These risk charges are then combined using a correlation matrix specific to each sub-module to derive the capital requirement for each underwriting risk sub-module.



Market risk

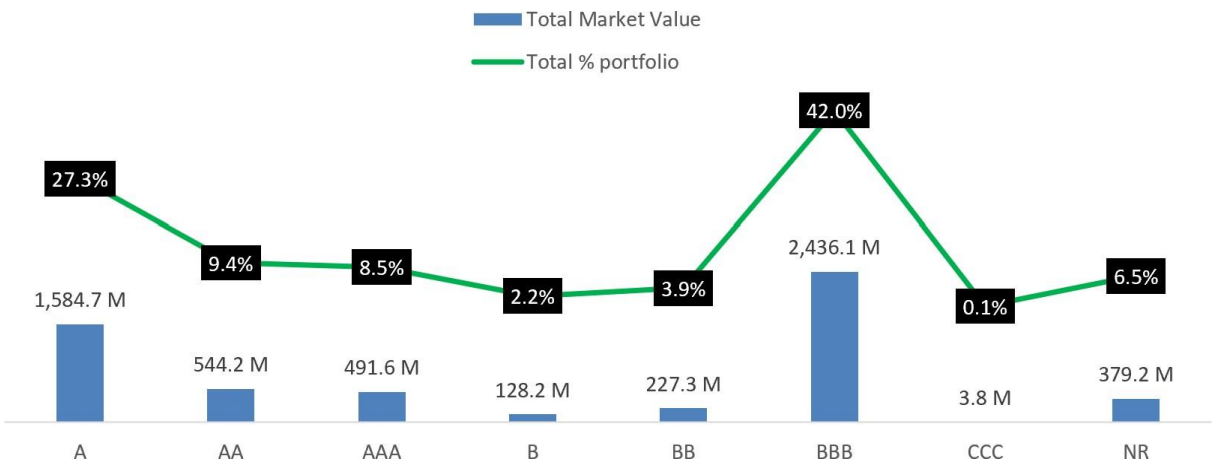
The market risk module calculates risk charges for different market risks, such as interest rate risk, equity risk, property risk, spread risk, and currency risk. A correlation matrix is used to combine these risk charges, considering the correlations between different market risks.



Derived from the schedule D's available on Bloomberg, we see a spike in both average DV01 and average OAD here once OAC becomes positive, indicating that the market value of AmTrust's portfolio of invested assets prices will increase more (or decrease less) when interest rates fall, and decrease less (or increase more) when interest rates rise.

Credit risk

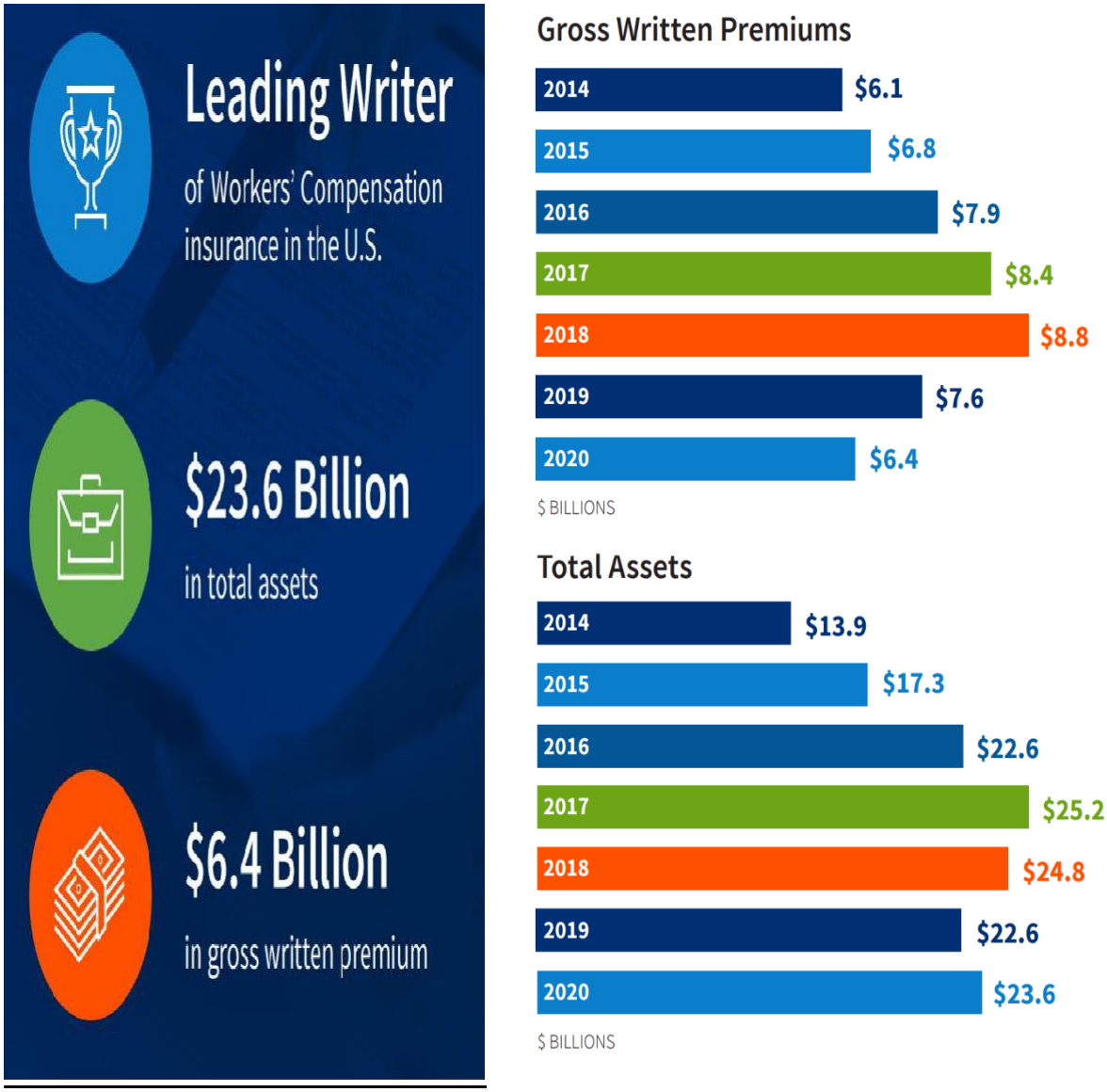
The credit risk module calculates the risk charges associated with the default or deterioration of counterparties. The risk charges are based on the credit quality and exposure to each counterparty. The credit risk module typically employs a credit spread risk approach.



Also derived from Amtrust's Schedule Ds, we see here that AmTrust is assuming a healthy level of risk: with nearly 70% of its portfolio invested in either A or BBB grade securities, and nearly double as much investment in BBB grade securities than A grade securities – AmTrust is not only prepared to capitalize on interest rate fluctuation, but they are also well covered against the prospect of a rough economy.

Operational risk

The operational risk module calculates the risk charge based on the size and complexity of the insurer's operations. The calculation typically considers factors such as the insurer's gross written premiums and technical provisions.



"Financial Strength." – AmTrust Financial, 2022[9]

2. Aggregation of risk modules

Once the risk modules are quantified, they are aggregated to determine the total SCR. The aggregation process involves using a correlation matrix that captures the correlations between different risk modules. The matrix is populated with correlation coefficients that represent the degree to which the risk modules are interrelated. A positive correlation coefficient indicates that two risks tend to move in the same direction, while a negative correlation suggests that the risks move in opposite directions. The aggregation process involves multiplying the risk charges by the correlation coefficients and summing up the results to derive the total SCR. This process takes into account the diversification effects of holding different types of risks, recognizing that not all risks will materialize simultaneously.

It's important to note that the standard formula is a one-size-fits-all approach, and insurers may find that it does not fully capture their specific risk profiles. Specifically, the market risk calculation under the Solvency II standard formula focuses on the risks arising from fluctuations in financial markets, such as interest rates, equity prices, real estate prices, and exchange rates. Risk profiles excluded from this profile include but are not limited to the following:

Offsetting from technical provisions

The standard formula does not fully capture the potential offsetting effects between an insurer's assets and technical provisions, which represent the insurer's liabilities toward policyholders. For example, the insurer's liabilities might be sensitive to interest rate changes, but the standard formula does not fully account for the potential offsetting impact that the insurer's assets may have on these liabilities. This limitation can lead to potential overestimation or underestimation of the market risk.

Liquidity risk

The standard formula does not specifically include a separate module for liquidity risk, which is the risk that an insurer may not have sufficient cash or liquid assets to meet its financial obligations. Liquidity risk can arise from mismatches in the cash flows of assets and liabilities or due to unforeseen events that could force the insurer to liquidate assets at unfavorable prices.

Concentration risk

While the standard formula captures credit risk associated with counterparties, it does not explicitly consider concentration risk, which arises when an insurer has a significant exposure to a single counterparty or a group of related counterparties. Such concentration can exacerbate the impact of a credit event on the insurer's financial position.

Behavioral risks

The standard formula does not explicitly account for risks arising from the behavior of policyholders, such as policy lapses, surrenders, or changes in the utilization of insurance

products. These behavioral risks can affect the insurer's cash flows and the value of its assets and liabilities.

Emerging risks

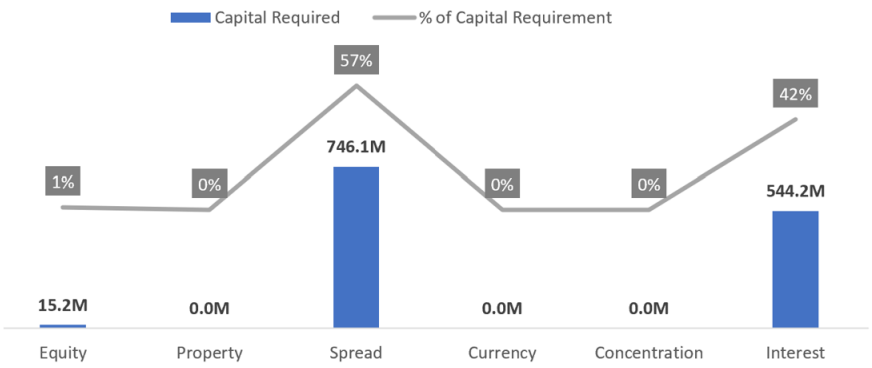
The standard formula does not fully capture emerging risks, such as risks related to climate change, pandemics, or cyber threats. These risks can have significant impacts on the financial markets and the insurer's investment portfolio.

To better capture these risk profiles and provide a more accurate representation of an insurer's market risk exposure, insurers may choose to develop their internal models for calculating the Solvency Capital Requirement (SCR). Internal models can be tailored to the specific risk profile of the insurer and can include risk factors that are not explicitly covered by the standard formula. But these internal models must be approved by the relevant regulatory authority before they can be used for calculating SCR, however. This is why it is crucial to first assess capital requirements under a framework such as Solvency II. While these constraints make it difficult to optimize a company's portfolio of invested assets, this is exactly what can grant a company a competitive edge in the market.

Below is an aggregation of the risk assumed by AmTrust's portfolio of invested assets, dictated by SCR.

SCR Capital Requirement

	Total Capital Required ($ Amount)	% of portfolio Market Value
Total Portfolio	$ 1,033,729,423.76	17.8%
Equity	$ 15,198,387.83	0.2%
Property	$ -	0.0%
Spread	$ 746,058,752.20	10.2%
Currency	$ -	0.0%
Concentration	$ -	0.0%
Interest	$ 544,176,850.55	7.4%



MCR, on the other hand, serves as a lower threshold for the capital that an insurer must maintain. It is set to act as a critical intervention point for regulators and is designed to ensure that an insurer holds a minimum level of capital to cover its basic risks. MCR is calculated using a simple linear formula that takes into account the insurer's liabilities, premiums, and capital at risk.

The MCR formula is designed to be less complex and risk-sensitive than the Solvency Capital Requirement (SCR) calculation and is meant to be a floor below which an insurer's capital should not fall. If an insurer's capital falls below the MCR, it may trigger immediate regulatory intervention, such as a requirement to submit a plan for restoring the capital or, in extreme cases, revoking the insurer's license to operate.

MCR consists of two main components:

1. **Written premium-based component** (W_c)

This component takes into account the insurer's net written premiums (NWP) for non-life and life insurance business over the last 12 months. The NWP is multiplied by specific factors (e.g., 0.03 for non-life and 0.045 for life) to determine the premium-based component of the MCR.

2. **Technical provisions-based component** (T_c)

This component takes into account the insurer's net technical provisions (NTP) for non-life and life insurance business. The NTP is multiplied by specific factors (e.g., 0.006 for non-life and 0.009 for life) to determine the technical provisions-based component of the MCR.

The two components are then combined using a weighted average approach:

$$MCR = A * Wc + B * Tc$$

Where A and B are weighting factors that determine the relative importance of each component in the MCR calculation. The weighting factors typically sum up to 1.

To ensure that the MCR remains within a reasonable range, it is subject to an absolute floor (MCR_{min}) and a ceiling (MCR_{max}) – which are expressed as percentages of the SCR:

$$MCR_{min} \leq MCR \leq MCR_{max}$$

For example, the MCR might be required to fall within a range of 25% to 45% of the SCR. If the calculated MCR falls outside this range, it would be adjusted to the respective boundary. It is important to note that the MCR is a simplified and less risk-sensitive measure compared to the SCR. It serves as a basic minimum capital threshold that triggers regulatory intervention when breached. The SCR, on the other hand, is a more comprehensive, risk-based

capital requirement that better reflects an insurer's risk profile.

The main differences between SCR and MCR lie in their purpose, calculation methods, and regulatory implications. While SCR is a risk-based requirement designed to ensure that insurers have sufficient capital to withstand unexpected losses, MCR serves as a basic minimum capital threshold to trigger regulatory intervention. As a responsible insurer, Amtrust Financial Services must ensure that it holds adequate capital to meet both its SCR and MCR, which not only protects our policyholders but also demonstrates the company’s financial stability and commitment to sound risk management practices.

MCR was not calculated in this project.

Pillar II: Supervisory Review and Risk Management

Pillar II emphasizes the importance of qualitative aspects of an insurer's risk management framework, governance, and supervisory review process. The key elements of Pillar II include:

Governance

Insurers are expected to have an effective system of governance in place, which ensures sound and prudent management of their business. This includes a clear organizational structure with well-defined roles and responsibilities, effective risk management processes, and adequate internal controls.

Own Risk and Solvency Assessment (ORSA)

As part of Pillar II, insurers are required to conduct an ORSA, which is an internal process to assess their current and future risk exposures and solvency needs. ORSA should be forward-looking and incorporate both quantitative and qualitative aspects of the insurer's risk profile. It should be integrated into the insurer's overall risk management system and decision-making process.

Supervisory Review Process (SRP)

The SRP is conducted by regulatory authorities to assess the adequacy of an insurer's risk management framework, governance, and solvency position. Through the SRP, regulators can identify potential deficiencies, assess the quality of an insurer's ORSA, and take corrective actions if necessary.

Pillar III: Reporting and Disclosure

Pillar III focuses on transparency, accountability, and market discipline through enhanced reporting and public disclosure requirements. It aims to provide stakeholders, including policyholders, regulators, and investors, with relevant and reliable information on an insurer's financial position, risk profile, and risk management practices. The key components of Pillar III include:

Regular Supervisory Reporting (RSR)

Insurers are required to submit an RSR to regulatory authorities, which includes information on their financial position, solvency, risk profile, governance, and risk management practices. This report enables regulators to monitor and assess the insurer's compliance with Solvency II requirements.

Solvency and Financial Condition Report (SFCR)

The SFCR is a public disclosure document that insurers must publish annually. It provides a comprehensive overview of the insurer's solvency, financial position, risk profile, and risk management practices. The SFCR aims to enhance transparency, improve market discipline, and enable stakeholders to make informed decisions.

In summary, Pillar II and Pillar III of Solvency II focus on the qualitative aspects of risk management; governance, supervisory review, and disclosure. Pillar II emphasizes the importance of having robust risk management frameworks and governance structures, as well as conducting regular ORSAs. Pillar III aims to enhance transparency and market discipline through increased reporting and public disclosure requirements. Together, these pillars help ensure the financial stability of insurers and protect the interests of policyholders.

Best Practices for Solvency Hygiene:

1. Regularly reviewing and updating the standard formula assumptions and parameters to ensure that they remain relevant to the insurer's risk profile.
2. Conducting sensitivity and stress testing analyses to assess the potential impact of changes in risk factors on the SCR.
3. Comparing the results of the standard formula with those of internal models or other benchmarking tools to validate the appropriateness of the SCR calculation.
4. Ensuring that the SCR calculation process is well-documented, transparent, and subject to a robust governance framework.
5. Actively engaging with regulators and industry peers to stay informed about evolving best practices, regulatory developments, and emerging risks that may affect the SCR calculation.

Altogether, Solvency II significantly influences AmTrust Financial Services' company strategy by shaping its risk management, capital allocation policies, and reporting practices. Compliance with all three pillars ensures AmTrust's financial stability and protection of its policyholders. Additionally, Solvency II promotes a more risk-based approach to underwriting and pricing, which enables AmTrust to optimize its risk profile and improve overall financial performance – especially considering AmTrust’s aggressive, risk-seeking underwriting and pricing strategy. By adhering to Solvency II requirements, AmTrust demonstrates its commitment to financial stability, sound risk management, and transparency to its stakeholders.

Furthermore, Solvency II can serve as a strong baseline to compare an internal model against during development and testing; as well as providing provisions for capital requirement during the approval process.

Property and casualty insurance companies are subject to Solvency II and must develop strategies to comply with its requirements. The capital requirement calculation for all risk types, including investment risk, is derived using the SCR Standard Formula. The formula takes into account various factors such as the size and complexity of the company's operations, the nature of its risks, and the quality of its risk management. Investment risk is calculated based on the market value of the company's assets and the potential losses that could occur due to market fluctuations.

The document provided by EIOPA[7] emphasizes the importance of using the published Directive, Delegated Regulation, and Guidelines as the basis for implementing Solvency II. It also provides a dedicated regulatory Q&A process on the Preparatory Guidelines on Submission of Information to National Competent Authorities, which can be used to address any questions regarding the submission of information during the preparatory phase.

One tool that can be employed to optimize a company's risk profile is Moody's Barrie & Hibbert (B&H) economic scenario generator. Moody's B&H economic scenario generator is widely used in the financial and insurance industries for a variety of purposes, such as asset and liability management, regulatory capital calculations, and risk management.

At its core, the B&H economic scenario generator is a multi-factor, stochastic model that generates a wide range of possible future economic and financial market scenarios. It's designed to produce realistic outcomes, taking into account historical data, current market conditions, and the complex interdependencies between various economic factors. Some key features of the B&H model include but are not limited to:

Economic factors

The B&H model incorporates a range of economic and financial market variables, including interest rates, equity prices, property prices, inflation rates, exchange rates, and credit spreads. These factors are modeled based on their historical relationships and behaviors, generating a wide range of potential future scenarios for these key economic variables: Insurers can use these scenarios to assess how their investments and liabilities would respond to different market conditions. By analyzing the impact of these scenarios on their balance sheets, insurers can estimate the capital needed to cover potential losses arising from adverse market movements, which contributes to the market risk component of SCR.

Calibration

The model is calibrated using historical data and expert judgment to ensure that the generated scenarios are consistent with real-world observations. This calibration process is regularly updated to account for any changes in economic conditions or market dynamics.

The B&H model also generates scenarios for credit spreads, which represent the additional yield required by investors to hold a bond issued by a non-government entity compared to a government bond with the same maturity. By examining how credit spreads evolve under various economic scenarios, insurers can evaluate the potential losses arising from defaults and rating downgrades in their fixed-income portfolios. This information can be used to

estimate the capital needed to cover credit risk, another key component of SCR.

Risk-neutral and real-world scenarios

The B&H model can generate both risk-neutral and real-world scenarios. Risk-neutral scenarios are used primarily for pricing and valuation purposes, while real-world scenarios provide a more comprehensive view of the potential risks and rewards associated with different decisions.

After quantifying market and credit risks, insurers need to aggregate these risks to calculate the overall SCR. The B&H model's ability to capture correlations between different economic factors is particularly useful here, as it allows insurers to account for the potential diversification benefits that may arise from holding a well-diversified portfolio of assets and liabilities. By incorporating these correlations in the SCR calculation, insurers can obtain a more accurate estimate of the total capital needed to withstand extreme economic events.

Correlations

One of the strengths of the B&H model is its ability to capture the complex interdependencies and correlations between different economic factors. This is particularly important in risk management, as it helps to identify potential risks that may arise from the simultaneous occurrence of adverse events across various asset classes and financial markets, and is vital to the accuracy of SCR calculation.

Flexibility

The B&H model is highly customizable, allowing users to input their assumptions and preferences in order to generate scenarios tailored to their specific needs. This flexibility makes it a valuable tool for a wide range of applications, from strategic planning to stress testing. In addition to the standard SCR calculation, insurers may also use the B&H model to perform stress testing and scenario analysis, which can provide valuable insights into their risk exposures and capital adequacy under various adverse conditions. This can help insurers identify potential vulnerabilities in their balance sheets and take proactive steps to mitigate these risks.

In conclusion, Moody's B&H economic scenario generator is a powerful and versatile tool that provides a comprehensive view of the potential future economic and financial market conditions, making it a valuable tool for insurers in the SCR calculation process. By incorporating this tool into our decision-making processes, we can better understand and manage the risks and opportunities associated with our investments, insurance liabilities, and overall business strategy.

All simulation methods: including Moody's B&H model, have limitations – however. Such limitations include but are not limited to:

Model risk

Simulation models are based on specific assumptions, mathematical equations, and historical data. If these assumptions are incorrect or the model's structure fails to capture the true underlying relationships between variables, the results may be misleading. This is known as model risk and can lead to suboptimal decisions or an underestimation of potential risks.

Data limitations

Models rely on historical data for calibration and validation. If the available data is limited, biased, or of poor quality, the model's performance may suffer. Furthermore, historical data may not always be an accurate predictor of future events, especially in cases where structural changes or unprecedented events occur.

Parameter uncertainty

Model parameters, such as correlations and volatilities, are often estimated based on historical data. However, these estimates can be subject to uncertainty, leading to potential inaccuracies in the simulation results.

Computational complexity

Stochastic simulation models, like Moody's B&H, often require a large number of scenarios to be generated and analyzed. This can be computationally intensive and time-consuming, which may limit the feasibility of using these models in certain situations or make it challenging to explore a wide range of scenarios.

Limited applicability

Due to the underlying assumptions built into a model, some simulation models may be tailored to specific industries, asset classes, or market conditions, limiting their applicability in other contexts. This can make it challenging to use a single model across different business lines or to adapt the model to changing market dynamics.

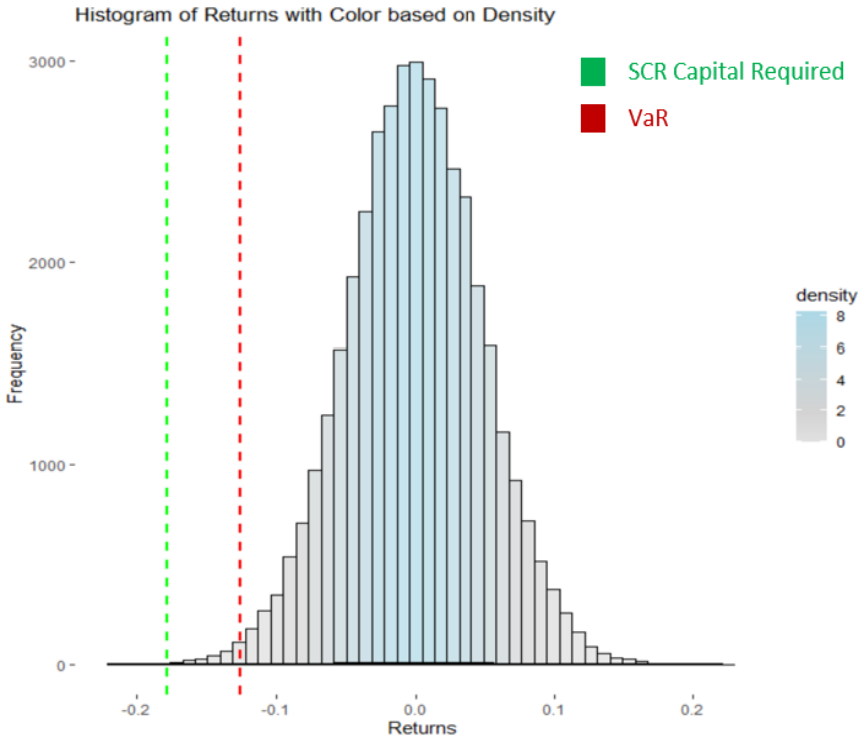
Non-stationarity and regime shifts

Economic and financial market conditions can undergo regime shifts or exhibit non-stationary behavior, which can be difficult for models to capture accurately. This can result in simulations that don't accurately reflect the potential risks and opportunities associated with different decisions.

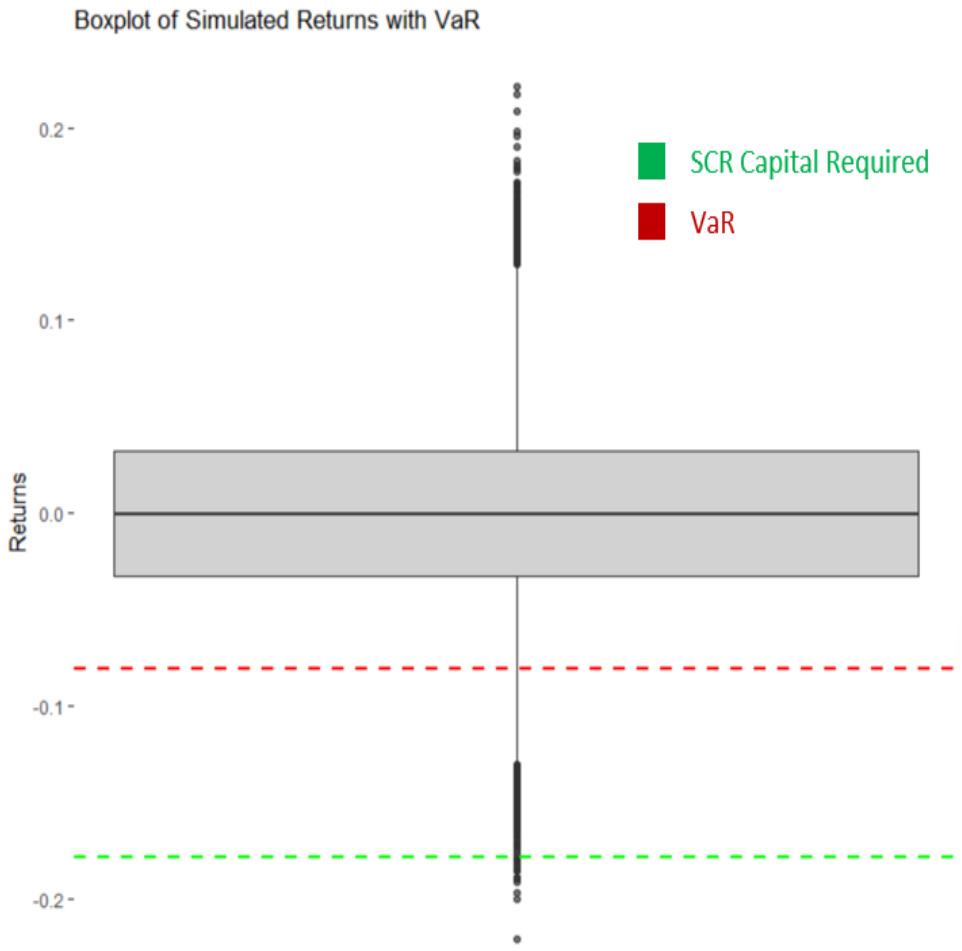
While simulation models provide valuable insights, it is crucial to be aware of their limitations and to exercise caution when interpreting and using their results. By combining the outputs of these models with expert judgment, qualitative assessments, and other risk management tools, organizations can make more informed decisions and effectively manage their risks.

Below are AmTrust's simulated portfolio return distribution using Moody's B&H, across 10,000 trials with quarterly timesteps over a 1-year horizon.

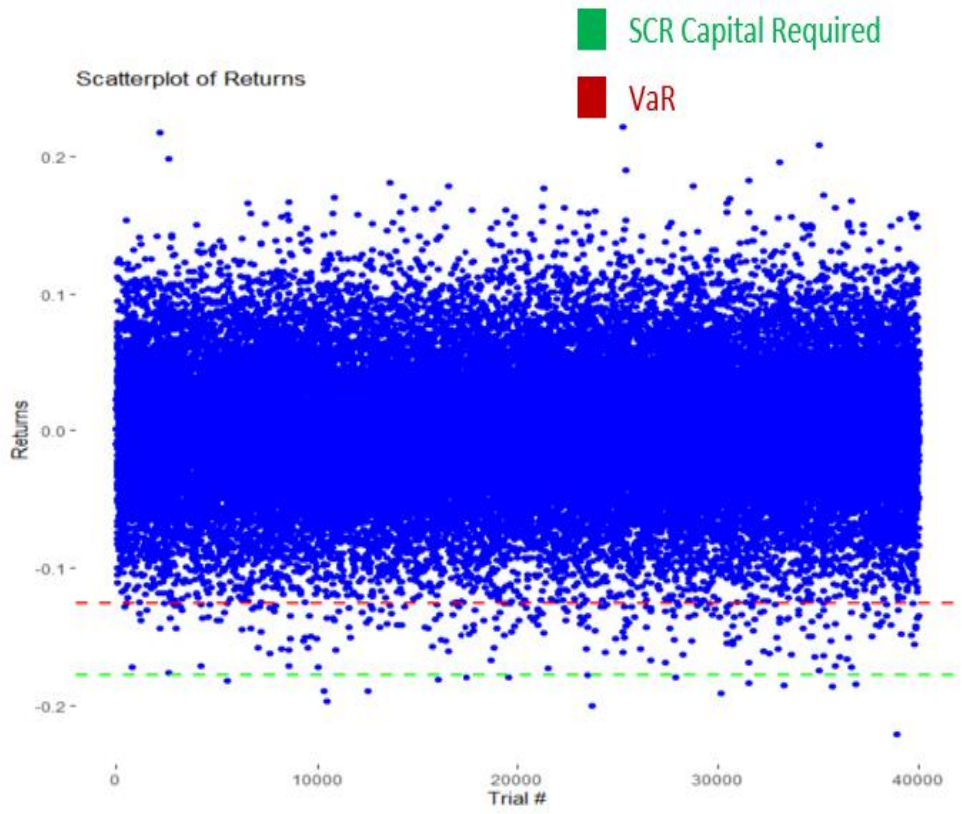
Min	SCR	VaR	1st Quantile	Median	Mean	3rd Quantile	Max
-22.1%	-17.8%	-12.6%	-3.3%	0.1%	0.1%	3.2%	22.2%



*The returns observed follow an **approximate normal distribution, centered at 0** – which is fairly realistic. The most frequent and therefore probable returns were slightly positive, which falls in line with AmTrust's overall risk profile.*



The symmetrical nature of the box plot of observed returns furthermore suggests that ***the simulation data is not skewed****. Given the range of plots, it is also observed that* ***the simulated worst-case scenario is not far off from the simulated VaR*** *– which is just about 5% above the SCR capital requirement. The box plot also shows that* ***75% of the returns are slight losses or better.***



The area of returns above the red and green lines represent the observed events for ***AmTrust's capital reserved under SCR vs the simulated VaR*** *remains solvent; here we can see the* ***both cover the vast majority of losses.***

Lastly, we see here the mean and median values compared against each other together with their respective error bars; not only is the ***mean virtually equivalent to the median*** *– indicating that the average simulated return is the same as the most common typical return, with* ***neglible error bars.*** *The standard deviation on the return distribution was approximately 3.1%, leading the* ***standard error to be virtually 0%****.*

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