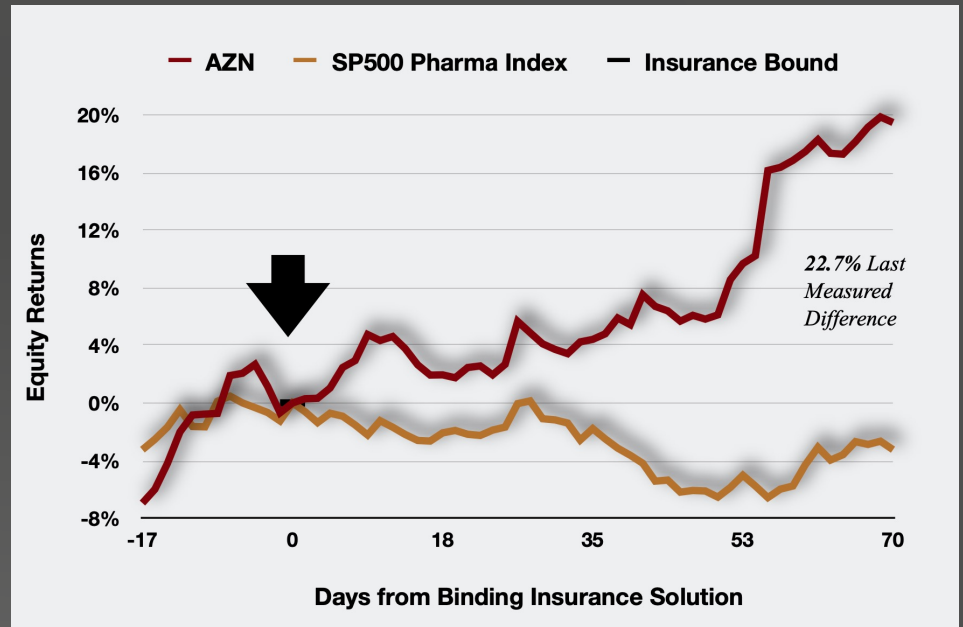
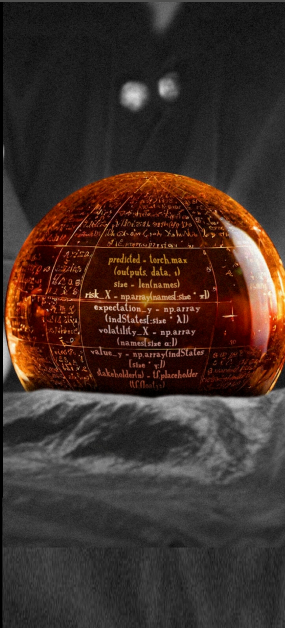


# Additional Materials for Success Story: Risk Management and Governance Look Smart

## RESILIENCE MONITOR

REPUTATION HEALTH RISK FORECASTING AND BENCHMARKING

Astrazeneca PLC Sponsored ADR  
May 10, 2024



# Key Observations

- Electronic Risk Intelligence
  - Reputation value depression beginning around August 2023 that was sharply reversed by factors including the complex resilience insurance solution in the spring of 2024.
- Resilience Monitor
  - Reputation value depression beginning around August 2023 that was sharply reversed by factors including the complex resilience insurance solution in the spring of 2024.
  - Since binding, a material near-meteoric rise in reputation value moving up the ranks from the 30<sup>th</sup> position to the 14<sup>th</sup> position over 13 weeks.
- Equity Value Chart
  - Equity returns outperformed the benchmark S&P500 Large Pharmaceutical Index (SP500.352020) by a maximum 22.7% (\$44bn) at the last measurement on May 10, 2024. A typical surge in the wake of an announcement about enhanced risk management for a mission-critical asset is 9%.



## RESILIENCE MONITOR

### Prepared for the Astrazeneca PLC Sponsored ADR companion graphic report on May 13, 2024

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### Summary of Observations and Recommendations

**Headline Assessment.** Data indicate a **potentially critical** level of reputation risk for Astrazeneca PLC Sponsored ADR. Increased *pre-emptive* reputation risk and crisis management as of May 10, 2024 are **strongly indicated**.

*This section is organized for quick orientation, observations, decisions, and actions. The data are current as of **May 10, 2024**. Detailed contents and chart references are in the Appendix beginning on page 4.*

**Strategic Risk Management and Governance Environment.** “Reading the room,” stakeholders’ mood does not appear agitated making the likelihood that a shock would trigger an *outsized reaction* low. The Astrazeneca PLC Sponsored ADR-specific “Fear Index” peaked in value on August 25, 2023.

Increased reputation risk mitigation actions, *when indicated*, would typically include consultation within the enterprise to determine: (1) what decision, policy, or statement from officers and directors; operational incident, or third-party actions that became public around the peak date precipitated stakeholders’ agitation; (2) what stakeholder expectations preceded the above; and (3) a course of action centered on meeting those expectations through operational changes to pre-empt a similar event from disappointing the same stakeholders; shaping expectations to current reality; or planning for the costs of loss. Not taking reputation risk mitigation actions when indicated increases the likelihood that an adverse event will precipitate a costly reputation crisis.

**Operational Enterprise Risk Management.** Data indicate no material expected changes in stakeholder behaviors or operations.

In addition to the general processes for enterprise reputation risk management, enhanced risk management resources and efforts including issue-specific collaboration and communication among potentially insular silos are strongly indicated as shown below and may help protect or restore value in one or more of these four contributors to enterprise resilience, especially if a major adverse event occurred in the past year or if the strategic risk environment described in #1 is precarious.

- **Mitigating risks to revenue: maintain baseline effort; no surge indicated.** Enhanced risk management, if indicated, could focus on mitigating sources of customer disaffection, supply chain issues, cyber hacks, property (fire, EH&S), and the impact of political violence, natural catastrophes, and other perils leading to business interruption.
- **Mitigating risks of higher costs and expenses: maintain baseline effort; no surge indicated.** Enhanced risk management, if indicated, could focus on mitigating employee disengagement; operational losses; credit costs, compliance failures; social license holder protests; and the additional costs arising from mitigating any of the multiple risks to revenue.

- **Mitigating risks to investors' appreciation of future potential: maintain baseline effort; no surge indicated.** Enhanced risk management, if indicated, could focus on collaborating with investor relations to promote the active mitigation of risks to revenue and of higher costs and expenses.
- **Mitigating risks to enterprise resilience: maintain baseline effort; no surge indicated.** Enhanced risk management, if indicated, could focus on implementing and promoting an integration of risk management and governance by the entire risk management apparatus through better risk intelligence and threat prioritization.

**Intelligence for Auditing Reputation Value and Risk Controls.** Astrazeneca PLC Sponsored ADR's reputation value is underperforming its historic range at some period this past year (see graphic).

Controls are established on the basis of the prior year's value and volatility or insurance parametric triggers, if applicable. Control discrepancies were observed for the following magnitudes and durations: 30 breach(es) of the first lower control bar over the trailing twelve months. There were 21 , 19 , 19 , 9 and 9 breach(es) of the second, third, fourth, and fifth lower control bars, respectively.

**Intelligence for Reputation Value and Risk Benchmarking.** With one (1) being the highest rank, Astrazeneca PLC Sponsored ADR's reputation value benchmarked at 13 among 392 **Pharmaceuticals: Major** industry peers. Named peers for a custom/bespoke benchmarking cohort are available; with bespoke benchmarking to a custom cohort, the company ranked at 1 out of 8.

**Historic Values.** Pharmaceuticals: Major industry historic rankings are available for 4 prior period(s). Over the past 1, 4, 8 and 13 weeks, the rankings were 14, 19, 30, and 30 respectively. Named peers for a custom/bespoke benchmarking cohort are available. Over the past 1, 4 and 13 weeks, the rankings among peers were 1, 1, and 1 respectively. One year ago, the ranking was 1.

**Note:** N/A=Data not available.

*This enterprise risk and reputation resilience report provides foresight for governance, recommended actions for risk management, and metrics for controls and benchmarking. Steel City Re's recommendations are based on Astrazeneca PLC Sponsored ADR stakeholders' mood and behaviors inferred from forward-looking data of financial expectations.*



## The Value of Reputation Risk Management

**Reputation risk** is the gap between your stakeholders' expectations and future reality. Its cost to Astrazeneca PLC Sponsored ADR depends on whether the expectations pertain to something that is mission-critical, the context of stakeholders' mood, and magnitude of the shock of disappointment. Every decision, policy, or statement from officers and directors can precipitate a crisis of disappointment. Any operational incident or any third-party action can too.

The key to efficient reputation risk management is to "read the room" and know when and where to best direct resources to mitigate the costs of shifting stakeholder expectations through risk operations, communications, and transfer.

**Why it matters:** Preventing stakeholder disappointment can mean the difference between customers buying or boycotting; employees working or fleeing; investors buying or selling; lenders adjusting interest rates down or up; regulators deferring or enforcing; and social license holders acquiescing or protesting.

**The numbers make a compelling case for reputation risk management over crisis management.** All things being equal, an insight-based reputation risk management approach yields, on average:

- **9.3%** stock price gain for firms that managed, validated and publicized reputation risk management strategies of mission-critical processes.
- **4.3%** stock price gain for firms that demonstrated reputation resilience in the setting of an adverse event.

Conversely, crisis management yields, on average:

- **9%** stock price loss after the first week.
- **13.2%** stock price underperformance of the market at seven-months
- **23.3%** stock price underperformance of peers at seven-months

**The takeaway:** Beginning with regular measurement and oversight through this report, reputation risk insurance can reinforce enterprise value resilience, protect Directors & Officers from liability and culpability, and promote the strategic value of risk management.

## Appendix: Detailed Quantitative Measures and Chart Annotations

This Appendix provides the reasoning and evidence behind Steel City Re’s foresight and recommended action for reputation risk management and governance. Data are *inferred from forward-looking data of financial expectations* specific to Astrazeneca PLC Sponsored ADR—four derivative measures capturing the economic notion of stock price fused into a synthetic index of reputation value. The synthetic index has been validated for more than a decade by hedge funds and a public equity index, INDEXCME: REPUVAR. Astrazeneca PLC Sponsored ADR data are also presented graphically in the companion *Resilience Monitor* charts.

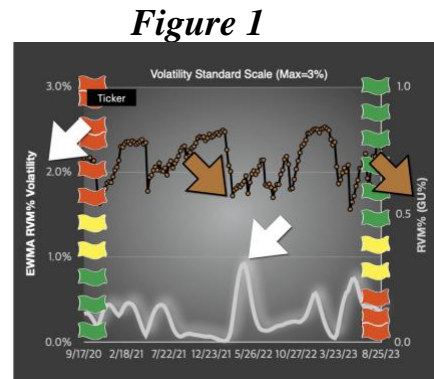
Intelligence for Risk Strategy/Future Loss | Environment (Fear Index)..... 4  
 Intelligence for Strategic Risk Operations/Current Loss (Risk Metric Subcomponents)..... 6  
 Intelligence for Auditing Reputation Value and Risk Controls..... 7  
 Intelligence for Reputation Value and Risk Benchmarking. .... 8

**Intelligence for Risk Strategy/Future Loss | Environment (Fear Index).** Weekly data over the past year indicate a **a potentially critical** level of reputation risk for Astrazeneca PLC Sponsored ADR. Stakeholders’ mood does not appear agitated making the likelihood that a shock would trigger an *outsized reaction* low. The metric for this assessment—the Fear Index—peaked in value on August 25, 2023. Increased *pre-emptive* reputation risk and crisis management as of May 10, 2024 are **strongly indicated**.

*Figure 1. Please see the separate companion Astrazeneca PLC Sponsored ADR Resilience Monitor graphic report dated May 10, 2024, key risk governance chart, page 5, left, for a graphical presentation of the above summary and details below.*

*The current exponentially weighted moving average reputation value metric percentile volatility is 0.027 . A value of around 0.02 (2%) or greater indicates an environment of generalized stakeholder agitation where an incident or adverse event is more likely to shift stakeholder expectations and generate outsized and longer-tailed consequences, all things being equal.*

*A generic annotated illustration of the risk governance chart, page 5, left, of the separate companion graphic report is shown here.*



**Reasoning and Evidence:**

This Steel City Re measure of emotional agitation is similar in design and purpose to the Chicago Board of Options Exchange (CBOE) VIX or “fear” index. It is suggested that the risk executive correlate the quantitative measures in this report with newsworthy quantitative and qualitative information that may be known by stakeholders whose expected behavior is reflected in these metrics.

**Underlying Expectation Risk from Historic Events**

Astrazeneca PLC Sponsored ADR’s stakeholders’ measured level of expectation agitation over the trailing twelve months peaked at 0.006<sup>1</sup> on the week ending August 25, 2023. Values near 0.02 (2%) or greater indicate stakeholder uncertainty implying exaggerated emotions, especially fear.

The spanning eight-week average change in reputational value of 0.087 GU%<sup>2</sup> at that time suggests the net emotion was optimism and positive anticipation. Material shifts in expectation<sup>3</sup> in either direction are associated with outsized reactions to incidents, events, or adverse news over the next year.

Its magnitude was unlikely to shift stakeholders’ expectations upward.

**Current Expectation Risk from Recent Events**

The current reputation value volatility is 0.027. It is compared to the peak 0.132 on July 6, 2023 and an average of 0.031 over the trailing 12 months. The difference between the current and average volatilities is (-0.004); the ratio is 87%.<sup>4</sup> The one (1) and four (4)-week measures of reputation value have moved 0.006 GU% and 0.038 GU%.<sup>5</sup>

These data suggest net stakeholder emotion at this time is pessimism, disappointment, or dread.

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<sup>1</sup> This unitless metric of volatility is the higher of either the unweighted or exponentially-weighted moving average of the trailing ten-week variance of the reputation value metric.

<sup>2</sup> GU% is the Gerken Unit percentile, which ranges from a low of 0.0 to a high of 1.0.

<sup>3</sup> Nobel Prize-winning insight, Economics, 2022, gleaned from studying how banks suddenly collapse, and what triggers a run (and by analogy, an equity share dump).

[https://en.wikipedia.org/wiki/2022\\_Nobel\\_Memorial\\_Prize\\_in\\_Economic\\_Sciences](https://en.wikipedia.org/wiki/2022_Nobel_Memorial_Prize_in_Economic_Sciences)

<sup>4</sup> Values may not appear to sum exactly due to rounding errors.

<sup>5</sup> GU% change data are measured on a scale of -1.0 to +1.0.

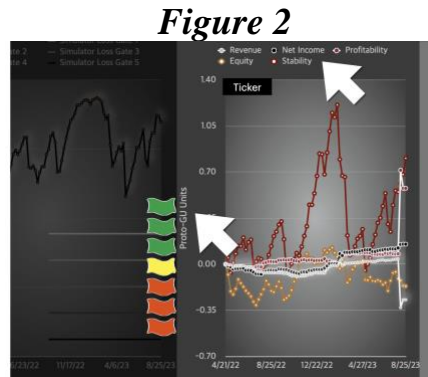
**Intelligence for Strategic Risk Operations/Current Loss (Risk Metric**

**Subcomponents).** Weekly data reflecting recent financial expectations indicate no material changes in stakeholder behaviors or operations. Additional, focused risk management resources and efforts are strongly indicated as shown below and may help protect or restore value. There are three major opportunities for integrating reputation risk management into enterprise risk management: risk intelligence; gamified prioritization; and risk communications.<sup>6</sup>

- maintain baseline effort; no surge indicated: *mitigating risks to revenue.*
- maintain baseline effort; no surge indicated: *mitigating risks of higher costs and expenses.*
- maintain baseline effort; no surge indicated: *mitigating risks to investors’ appreciation of future potential.*<sup>7</sup>
- maintain baseline effort; no surge indicated: *mitigating risks to enterprise resilience.*

Figure 2. Please see the separate companion AstraZeneca PLC Sponsored ADR Resilience Monitor graphic report May 10, 2024, key risk management chart, page 4, right, for a graphical presentation of the above summary and details below.

A generic annotated illustration of the risk management chart, page 4, right of the separate companion graphic report is shown here.



Reasoning and Evidence:

The directional change over the trailing twelve months with respect to expectations of stakeholder behaviors relevant to resilience that would impact the following areas—revenue, net income, and future growth, as well as their respective stabilities—are 0.13 , 0.12 , (-0.12), and (-0.27)<sup>8</sup>. Negative twelve-month changes in values reflect areas of expected net value-eroding behaviors.

Over the past 1, 4 and 13 weeks, respectively, changes in expectations as well as peak and trough values all arising from expected stakeholder behaviors have been recorded as follows:

- Expectations of revenue changes 0.00 , 0.02 , and 0.02 ; Peak and trough dates for relative revenue expectation changes are respectively the weeks ending September 29, 2023 and July 21, 2023.

<sup>6</sup> Reputation, Stock Price, and You (Apress: 2012) is a good reference text. Steel City Re’s advisory service is a good resource.

<sup>7</sup> Put simply, your stakeholders and the public at large want to know that you’re actively trying to preclude risk. They want to know that you have effective thoughtful risk management and dutiful governance—quality enterprise risk management. Strategic insurance helps deliver this message.

<sup>8</sup> Measured in proto-GU%, each component being normalized against the entire population of values.

- Expectations of net income changes (-0.00), 0.01 , and (-0.00); Peak and trough dates for relative net income expectation changes are respectively the weeks ending June 1, 2023 and January 26, 2024.
- Expectations of equity growth changes 0.01 , 0.11 , and 0.23 ; Peak and trough dates for relative equity growth expectation changes are respectively the weeks ending May 11, 2023 and September 29, 2023.
- Expectation stability changes 0.06 , 0.04 , and 0.18 ; Peak and trough dates for relative metric stability expectation changes are respectively the weeks ending May 18, 2023 and September 29, 2023.

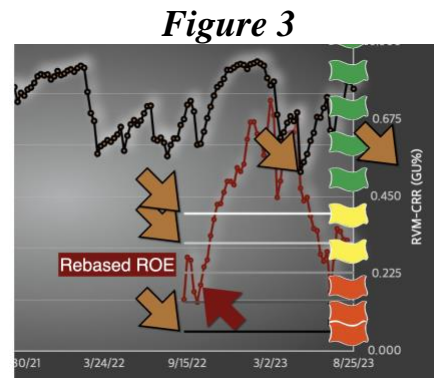
**Intelligence for Auditing Reputation Value and Risk Controls.**<sup>9</sup> Astrazeneca PLC Sponsored ADR’s reputation value and volatility to controls established on the basis of the prior year’s value and volatility, show that .Astrazeneca PLC Sponsored ADR’s reputation value is underperforming its historic range; i.e., 30 breach(es) of the first lower control bar over the trailing twelve months. There were 21 , 19 , 19 , 9 and 9 breach(es) of the second, third, fourth, and fifth lower control bars, respectively.

*Figure 3. Please see the separate companion Astrazeneca PLC Sponsored ADR Resilience Monitor graphic report May 10, 2024, [key reputation value control charts on page 3](#), for a graphical presentation of the above summary and details below.*

*Black and gold markers, black line. RVM% is a composite index of four ~equally weighted forward looking financial measures of expected revenue, income, equity value, and their net stability. The unit of measure is the Gerken Unit percentile (GU%).*

*Red line. Change in market capitalization of Astrazeneca PLC Sponsored ADR adjusted for the change in the S&P500 to reduce signal noise.*

*A generic annotated illustration of the reputation value control charts on page 3 of the separate companion graphic report is shown here.*



**Reasoning and Evidence:**

<sup>9</sup> A general overview of the reputation risk management controls and benchmarking information provided by this resilience monitor can be found in this [explanatory video](#).

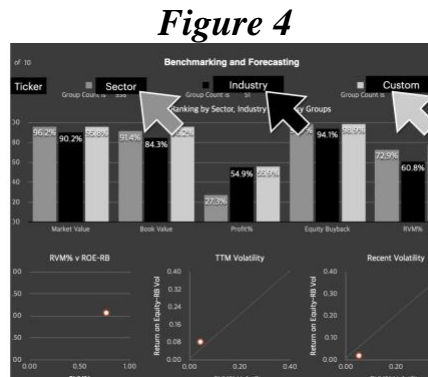
The average direction<sup>10</sup> of change over the past year is 0.06 (GU% vector). AstraZeneca PLC Sponsored ADR’s current reputation value<sup>11</sup> is 0.96 GU%, compared with reputation values of 0.96 GU%, 0.95 GU%, and 0.90 GU% over the past 1, 4, and 13 weeks respectively.

The reputation value changes are reflected in the observed change in market capitalization, currently \$239287 million, which has changed 1%, 12%, and 24%, over the past 1, 4, and 13 weeks, respectively; or, when adjusted to remove background market effects, (-1%), 9%, and 15% over the past 1, 4, and 13 weeks, respectively.

**Intelligence for Reputation Value and Risk Benchmarking.** AstraZeneca PLC Sponsored ADR’s reputation value benchmarked to 392 Pharmaceuticals: Major industry peers earns a ranking at 13 , which corresponds to the 0.96 percentile. Named peers for a custom/bespoke benchmarking cohort are available; with bespoke benchmarking to a custom cohort, 8 custom-selected peers, places the company ranking at the 0.79 percentile for a rank of 1 out of 8 with one (1) being the highest rank.

*Figure 4. Please see the separate companion AstraZeneca PLC Sponsored ADR Resilience Monitor graphic report May 10, 2024, [key benchmarking charts on page 6](#), for a graphical presentation of the above.*

*A [generic annotated illustration of benchmarking charts on page 6](#) of the separate companion graphic report is shown here.*



**Historic Values.** Pharmaceuticals: Major industry historic rankings are available for 4 prior period(s). Over the past 1, 4, 8 and 13 weeks, the rankings were 14, 19, 30, and 30 respectively. Named peers for a custom/bespoke benchmarking cohort are available. Over the past 1, 4 and 13 weeks, the rankings among peers were 1, 1, and 1 respectively. One year ago, the ranking was 1. Note: N/A=Data not available.

<sup>10</sup> Vector-based charts on pages 6 and 7.

<sup>11</sup> Steel City Re makes available for risk managers on request a PowerPoint® template, prepopulated with company-specific data, on reputation risk for use in ERM and board presentations.



# RESILIENCE MONITOR

REPUTATION HEALTH RISK FORECASTING AND BENCHMARKING

## Astrazeneca PLC Sponsored ADR May 10, 2024

Data Audit: RVM\_CRR-AZN-45423-6920



Form F8005 Strictly Confidential



Contents for AZN	Page
<b>Glossary and Technical Explanation.</b> Guide to the charts.	8-10
<b>Strategic Risk Management and Governance Environment:</b> Measure of shifting stakeholder expectations and environmental risk, <i>aka</i> “Fear Index.”	5
<b>Operational Enterprise Risk Management:</b> Expected changes in stakeholder behaviors or operations.	2-4
<b>Auditing Reputation Value and Risk Controls.</b> Control bars and parametric insurance trigger values.	3
<b>Benchmarking and Trends:</b> Peer group metrics and spot values relative to period trends.	6-7

## Description

This enterprise risk and reputation resilience report provides foresight for governance, recommended actions for risk management, and metrics for controls and benchmarking.

Effective reputation risk governance and management can mean the difference between customers buying or boycotting; employees working or fleeing; investors buying or selling; lenders adjusting interest rates down or up; regulators deferring or enforcing; and social license holders acquiescing or protesting.

Data shown here graphically are *inferred from forward-looking data of company-specific financial expectations*—four derivative measures capturing the economic notion of stock price fused into a synthetic index of reputation value.

The synthetic index has been validated for more than a decade by hedge funds and a public equity index, INDEXCME: REPUVAR. Company data are also presented in text form in the companion *Resilience Monitor* narratives.

## Vital Signs and Key Metrics

Simulation Start Date	May 18, 2023	
Simulation End Date	May 10, 2024	
Simulation Binding RVM%	0.975	
Current RVM% & Industry Rank	0.961	13
RVM% Sim/Current	0.9764	0.9610
RVM Sim/Current	0.6583	0.6486
Losses Gate 1/RM	30	1.50
Losses Gate 2/RM	21	2.50
Losses Gate 3/RM	19	3.50
Losses Gate 4/RM	9	4.50
Losses Gate 5/RM	9	5.50
RVM% Vol Sim/Current	0.0197	0.0308
RVM Vol Sim/Current	0.0685	0.0749

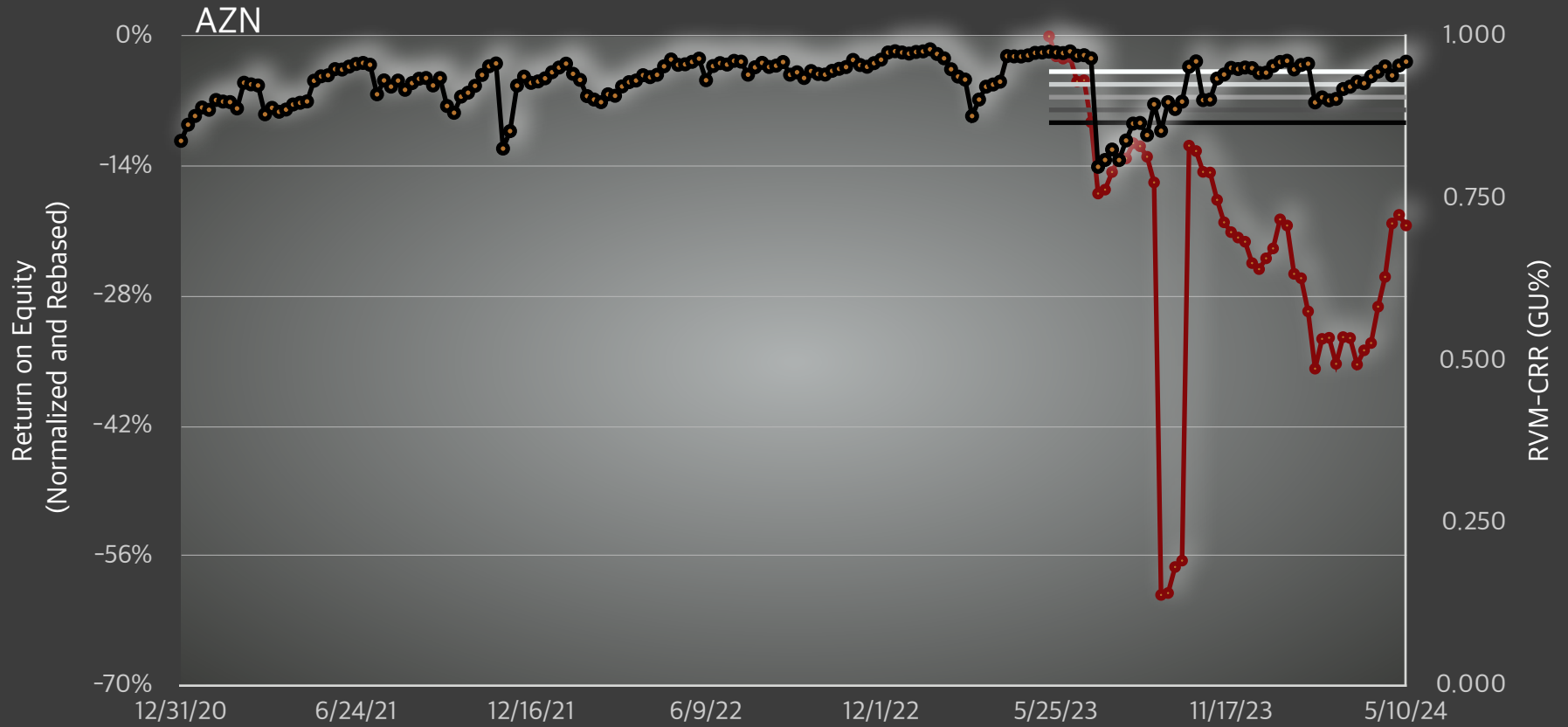
## Subjectivities and Notices

This report comprises an analysis of publicly available data that have been subjected to proprietary algorithms maintained and operated by Steel City Re. The sources are believed to be reliable. The actuarial analysis was prepared by Steel City Re’s Maths Unit.

However, Steel City Re is not an auditor and has not independently verified the underlying data. Because of the possibility of human or mechanical error as well as other factors, all information contained herein is provided “As Is” without warranty of any kind.

- RVM-CRR
- Simulator Loss Gate 1
- Simulator Loss Gate 2
- Simulator Loss Gate 3
- Simulator Loss Gate 4
- Simulator Loss Gate 5
- Period Rebased ROE

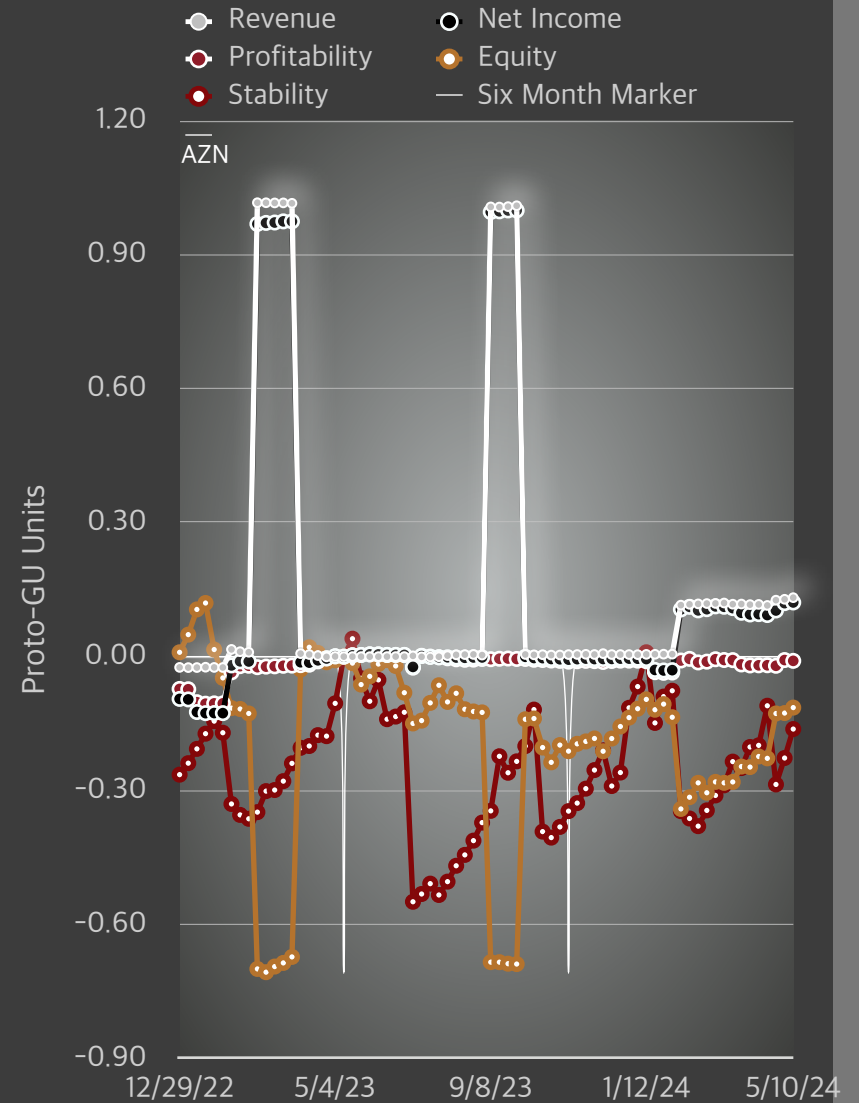
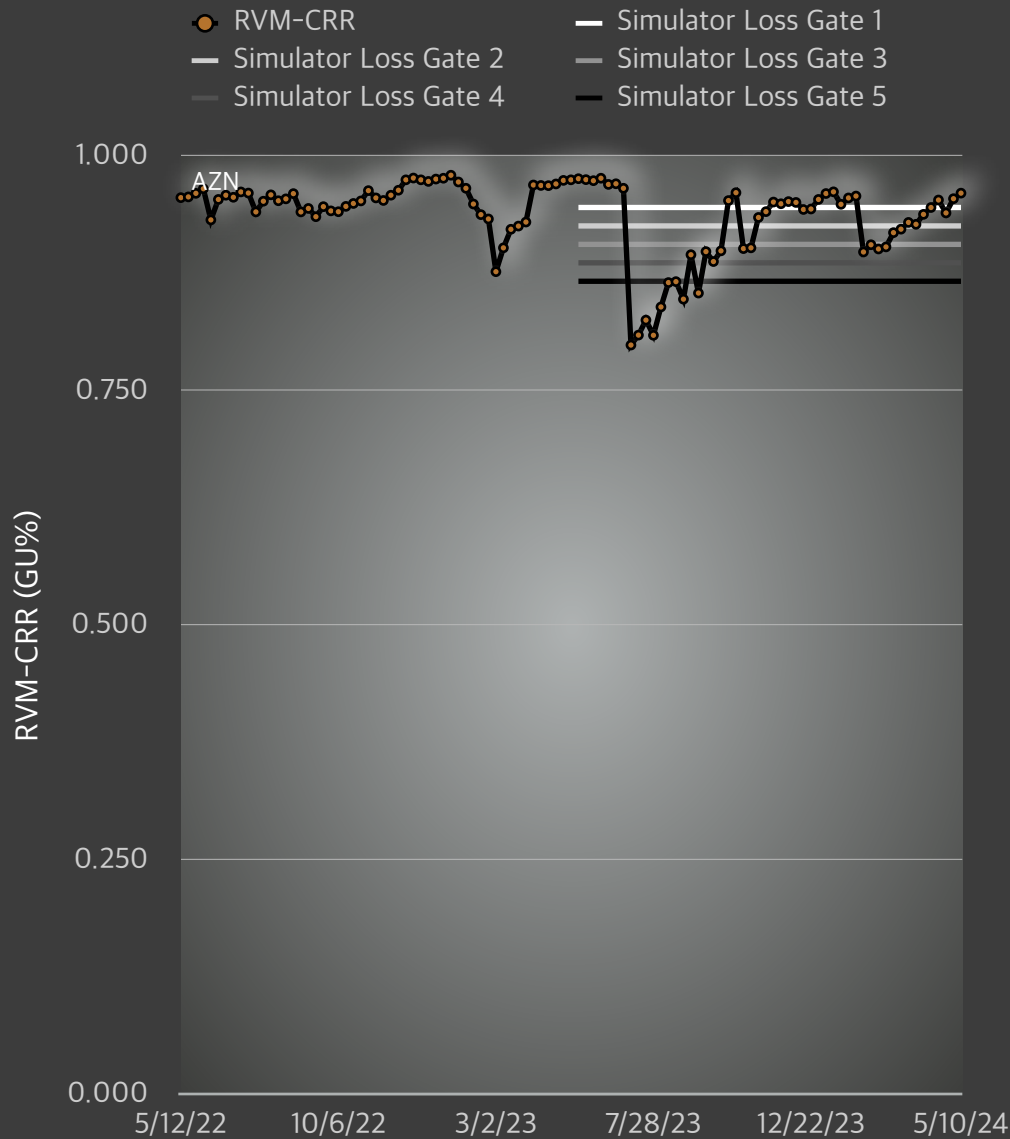
### Equity and RVM Performance Overview



**Note:**

RVM-CRR is a synthetic index of reputation value *inferred from forward-looking data of company-specific financial expectations*—four derivative measures capturing the economic notion of stock price—and reported for linguistic comfort in Gerken Units (GU%).





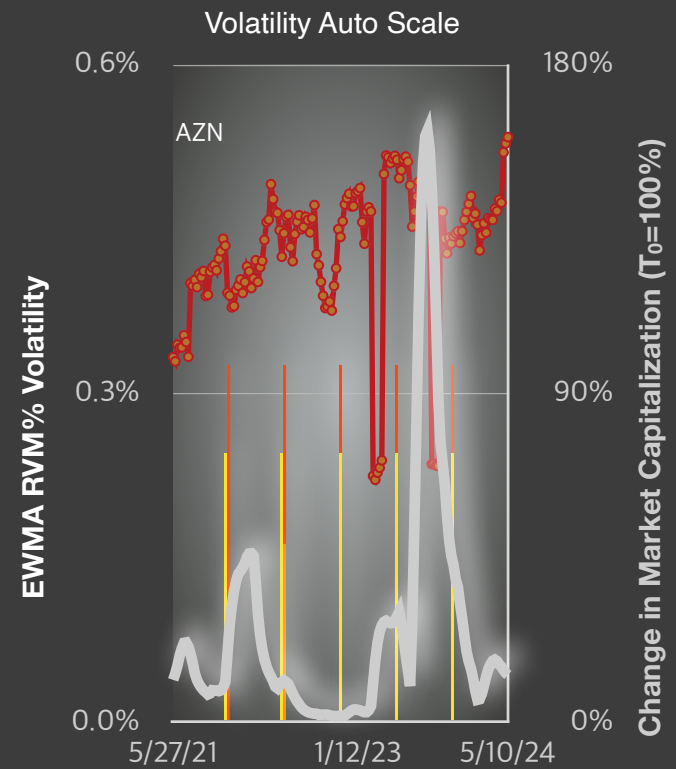
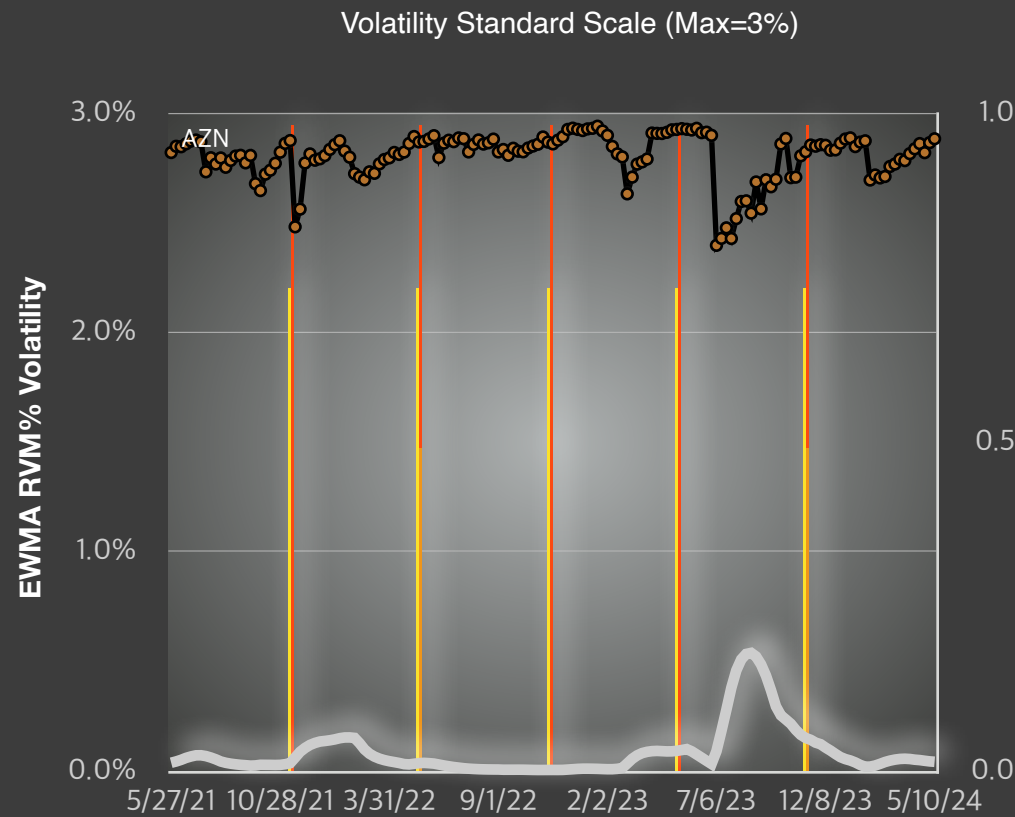
Detailed view of reputational value (RVM-CRR) movement and changes in its underlying components



### Strategic Oversight of Mission-Critical (Reputation) Assets



— EWMA   
 ● RVM\_CRR   
 ■ Six Month Markers   
 ■   
 ■   
 — EWMA   
 ● AZN MarCap-Normalized   
 ■ Six Month Markers



*Volatility in reputational value (EWMA RVM%) – a quantitative measure of stakeholders' certainty in a company's ability to meet their expectations – is a leading sign of shifting stakeholder expectations that can trigger bank runs and stock price collapses. Corroborating measures are drops in reputational value (RVM%) and market capitalization.*

## Benchmarking and Forecasting



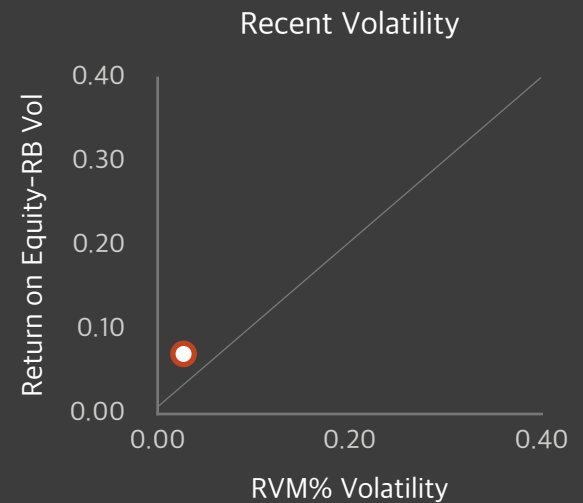
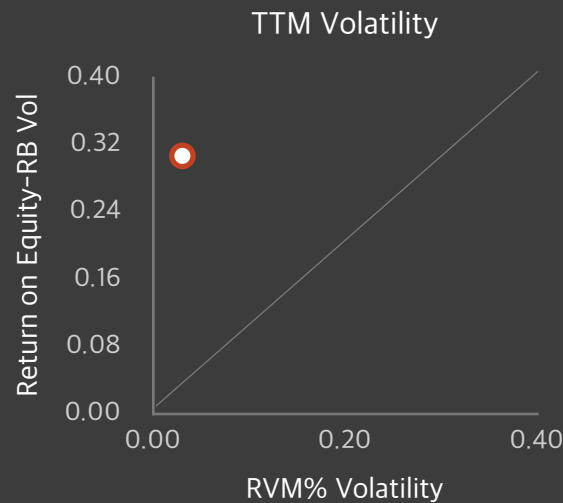
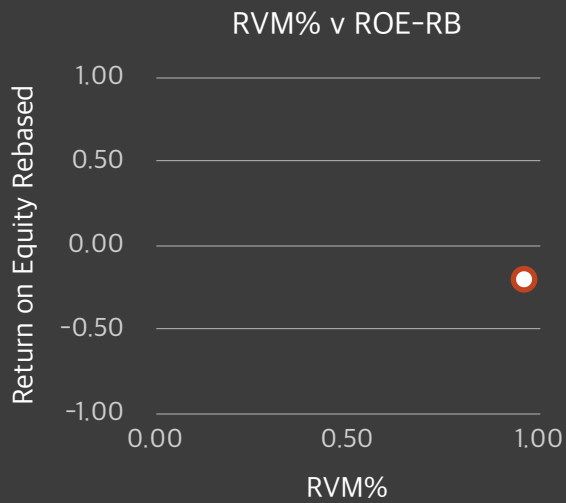
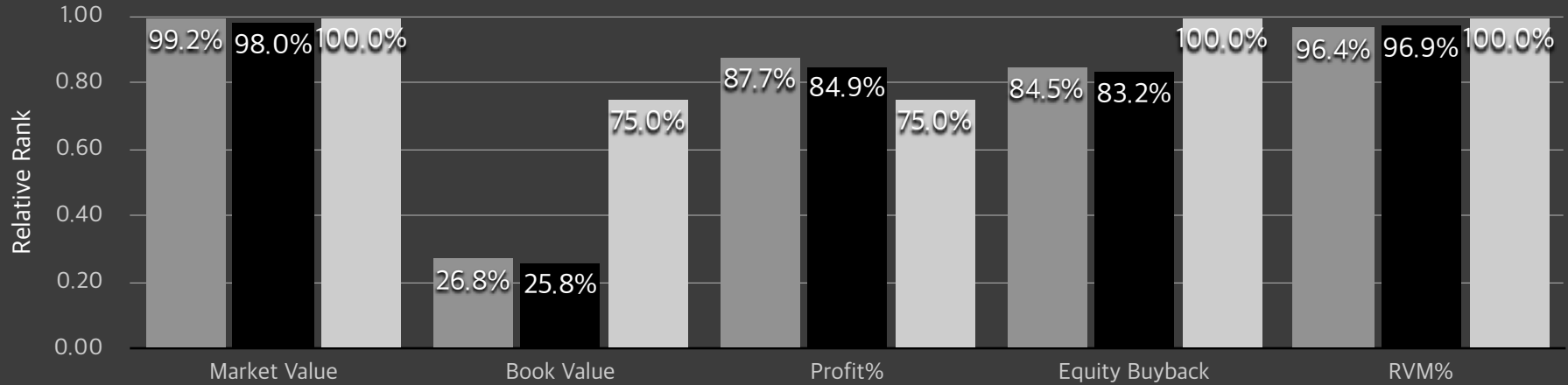
# AZN

Health Technology  
Group Count is 1007

Pharmaceuticals: Major  
Group Count is 392

AZN 20231222  
Group Count is 8

Peer Ranking by Sector, Industry and Proxy Groups

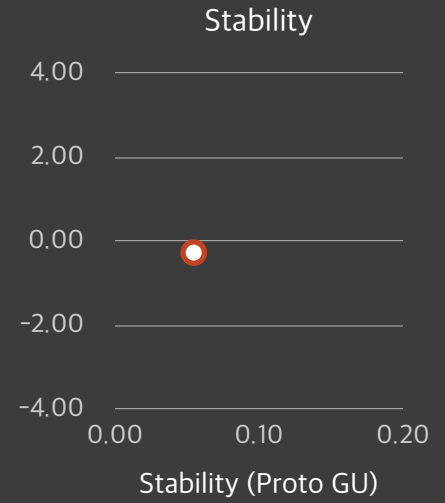
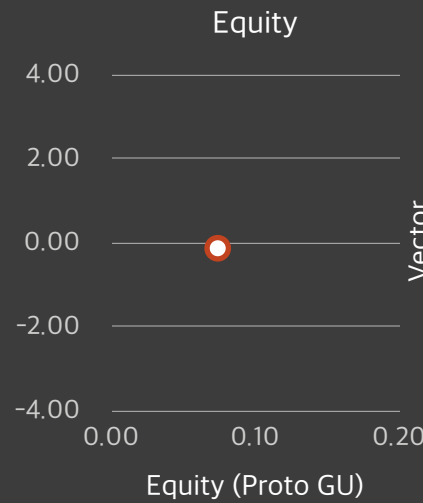
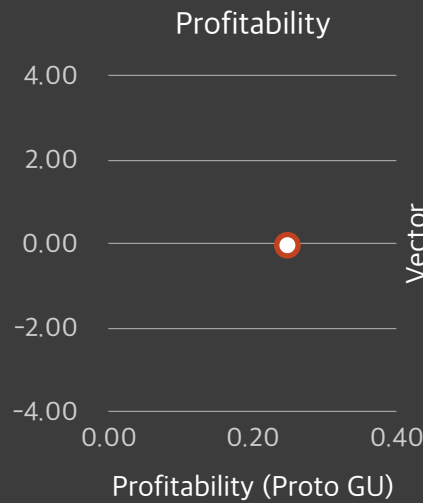
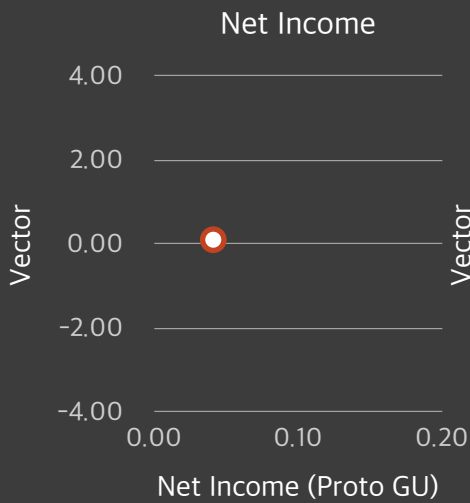
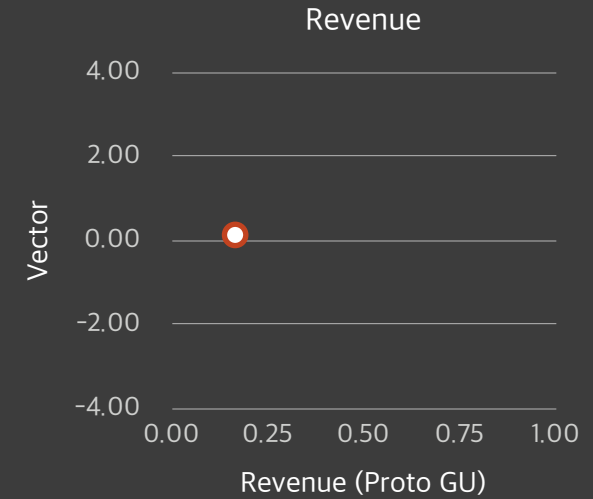
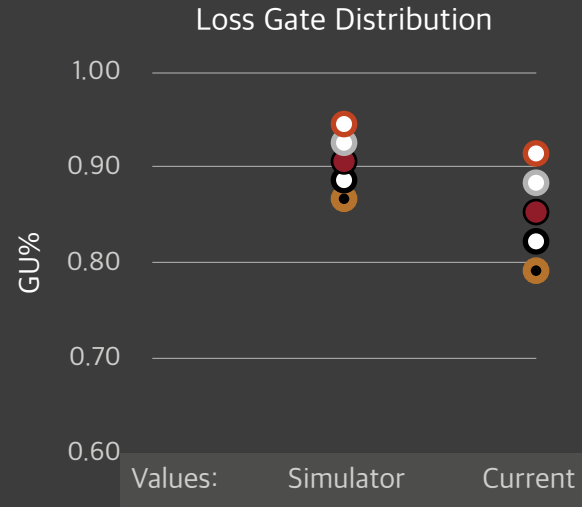
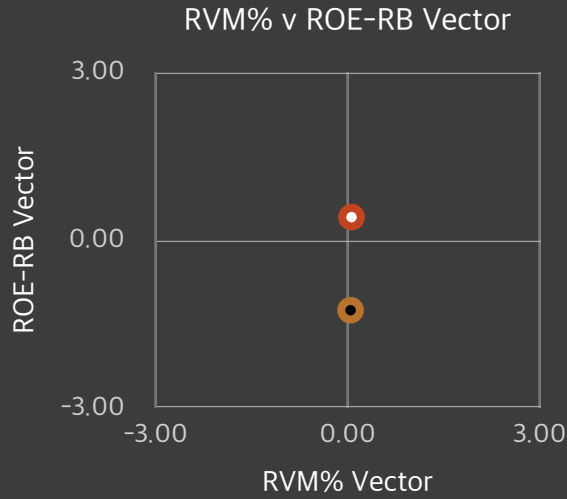


# Benchmarking and Forecasting



● Current    ● Simulator

● Loss Gate 1    ● Loss Gate 2    ● Loss Gate 3  
● Loss Gate 4    ● Loss Gate 5



## Page 1

End date of the 3-year data sweep

Data source file for audit start point

## Page 2: Vital Signs and Key Metrics

### TTM Experience Simulation Window

**RVM% Binding** = Value 1-2 weeks before experience simulation.  
Baseline for all Loss Gate calculations.

**RVM% Sim/Current** = Value at start and end of experience simulation.

**RVM Sim/Current** = Value of a pre-percentile ranked reputational value metric (research purposes).

**Loss Gates 1-5.** Number of breaches and the range multiple (~# standard deviation-like) of the Loss Gate.

**RVM% Vol Sim/Current** = Volatility value (standard-deviation) at start and end of experience simulation.

**RVM Vol Sim/Current** = Volatility value (standard-deviation) of a pre-percentile ranked reputational value metric (research purposes).

## Page 3

### Equity and RVM% Performance Overview

Equity ROI and RVM% chart overlay

Left vertical axis: Market capitalization time series normalized to the S&P500 index.

Right vertical axis: RVM%. Black line with gold centers: RVM% value time series (range 0-1).

Horizontal black, gray and white lines: Loss Gates 1-5 of the experience simulation.

## Page 4

### Equity and RVM% Subcomponent Performance Overview

Left chart: RVM%

Vertical axis: RVM%. Black line with gold centers: RVM% value time series (same as page 3).

Horizontal black, gray and white lines: Loss Gates 1-5 of the experience simulation (same as page 3).

Right chart: *Subcomponents of the RVM% value, change during experience simulation*

Vertical axis: Proto GU Units.

**Revenue** - Normalized expected forward twelve months sales per share time series (range -1 to 1).

**Net Income** - Normalized expected forward twelve months net income per share time series (range -1 to 1).

**Profitability** - Normalized expected forward twelve months net income% of expected sales time series (range -1 to 1.)

**Equity** - Normalized current share price per expected forward twelve months earnings multiple time series (range -1 to 1).

**Stability** - Normalized inverse exponentially weighted moving average share price volatility time series (EWMA  $\lambda$  0.97) (range -1 to 1).



## Page 5

### EWMA RVM% Volatility, RVM%, & Market Cap

*Trailing ten period exponentially weighted moving average of 13 trailing weeks of RVM% variance.*

Left: Fixed scales of RVM% volatility and RVM% value.

Right: Self-adjusting scales for both RVM% volatility and change in market capitalization.

## Page 6

### Benchmarking and Forecasting

*Top row: Benchmarking relative to sector, industry, and custom peer/proxy-defined group, spot value at end date (range 0-1)*

*Bottom row: Spot relationships between Market Capitalization and RVM%*

Left: Rebased return on equity, trailing twelve months, spot value vs RVM% spot value.

Center: Rebased return on equity volatility, trailing twelve months, spot value vs RVM% volatility trailing twelve months, spot value.

Right: Rebased return on equity volatility, exponentially weighted moving average (EWMA  $\lambda$  0.97) spot value vs RVM% volatility exponentially weighted moving average (EWMA  $\lambda$  0.97) spot value.

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### Benchmarking and Forecasting: Magnitude and Direction of Change

*All vector value calculations: (End value - Initial value)/Trailing Twelve Month (TTM) Median value.*

### Top row

Left: Rebased return on equity, trailing twelve months, vector vs RVM% vector, comparing value at the beginning of the experience simulation and at the end.

Center: Values of the five Loss Gates (based on trailing twelve month RVM% volatility) for the experience model based on the initial RVM% value and volatility (simulation) and the end values (current).

### Balance of Top Row and Bottom Row

*Vector vs spot value plots of the subcomponents of the RVM% value (right chart, page 4).*

Top Right: **Revenue** - Normalized expected sales per share end value (range -1 to 1) vs its vector (End value - Initial value)/Median value.

Bottom Left: **Net Income** - Normalized expected forward twelve months net income per share end value (range -1 to 1) vs its vector (End value - Initial value)/Median value.

Bottom Left Center: **Profitability** - Normalized expected forward twelve months net income% of expected sales end value (range -1 to 1) vs its vector (End value - Initial value)/Median value.

Bottom Right Center: **Equity** - Normalized current share price per expected forward twelve months earnings multiple end value (range -1 to 1) vs its vector (End value - Initial value)/Median value.

Bottom Right: **Stability** - Normalized inverse exponentially weighted moving average share price volatility end value (EWMA  $\lambda$  0.97) (range -1 to 1) vs its vector (End value - Initial value)/Median value.

## Glossary

Term	Page	Meaning
Ct	2	Count. Refers to number of times the particular loss gate has been breached by the weekly RVM% value.
EWMA	5	Exponentially-weighted moving average.
EWMA RVM% Volatility	5	Exponentially-weighted moving average of the volatility of the reputational value metric percentile (RVM%, aka RVM-CRR) value. This is a leading indicator of shifting stakeholder expectations.
GU%	3, 4, 5, 7	Gerken Unit percentile, the preferred unit of measure for reputational value metric percentile (RVM%). Named after Peter Gerken, a founder of Steel City Re.
Losses Gate n/Ct/RM	2	Details on an insurance trigger: priority (n), breach count (Ct), and magnitude of basis risk.
MarCap	5	Market capitalization.
Proto-GU	4, 7	Unit of measure of a subcomponent of the reputational value metric—proto Gerken Unit.
RB	6, 7	Rebased. Calculation baseline set to 0 or 100%.
RM	2	Range multiple—the parametric insurance equivalent of a deductible and basis risk.
ROE	3	Return on equity.
ROE-RB	7	Return on equity, rebased.
RVI	3	Reputation value insurance.
RVM	2, 3	Two meanings. Informally, the reputation value metric. Technically, the reputation value metric raw score of the amalgamated subcomponents, each measured in proto Gerken Units.
RVM-CRR	3, 4, 5	Reputation value metric - Corporate, relative reputation. Older term used to describe the normalized reputation value metric percentile (RVM%), reported in Gerken Units % (GU%).
RVM%	2, 5, 6	Reputation value metric percentile. The final form of a firm's measure of reputation value, also known historically as the RVM-CRR. Reported in Gerken Units % (GU%), it is an indicator of the value created by stakeholder expectations.
T <sub>0</sub>	5	Time zero.
TTM	6	Trailing twelve months.
Vector	7	Directional measure of historic change in value over time. Calculated as final value minus initial value divided by median value.
Vol	6	Volatility.