

# SUMTYME.AI, ADE JINADU

## Proposal and Comment Information

**Title:** GSIB-Regulatory Capital Rule: Risk-Based Capital Surcharges for Global Systemically Important Bank Holding Companies; Systemic Risk Report (FR Y-15), R-1889

**Comment ID:** FR-2026-0009-01-C18

## Submitter Information

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Subject: Comment Letter on GSIB-Regulatory Capital Rule [Docket No. R-1889]

Pursuant to the Administrative Procedure Act (APA), 5 U.S.C. § 553, we submit the attached comment to identify a significant Less Restrictive Alternative (LRA) to the proposed modifications of the G-SIB surcharge and FR Y-15 reporting requirements.

The Ideological Deadlock: The current rulemaking remains stalled between a mandate for systemic resilience (Vice Chair Barr) and the necessity for economic efficiency (Chair Powell). We propose a Risk-Inception Framework (RIF) called the Causal Inception Layer (CIL) as the definitive technical bridge to resolve this deadlock.

Key Technical Interventions:

- **Deterministic Resilience:** Unlike static capital surcharges, the CIL identifies systemic shifts at the point of causal inception. This transforms risk from a probabilistic guess into a deterministic calculation, providing the proactive tail-risk mitigation demanded by the Board without the economic drag of restrictive capital buffers.

- **Addressing the \$33 Billion Misallocation:** The Board's impact analysis identifies a \$33 billion misallocation in CET1 capital. We demonstrate that this capital currently serves as a dormant buffer against model latency. By eliminating detection lag via inception-level monitoring, the Board can realise this \$33 billion in capital efficiency without sacrificing safety or market stability.

**Modification of FR Y-15 Scoring:** We propose integrating the CIL into the scoring rubric for Schedule D (Complexity) and Schedule B (Interconnectedness). By providing an auditable roadmap for risk mitigation, the CIL reduces the complexity burden and prevents the "Synchronised Liquidation Trap" that current metrics fail to address.

- **Legal and Supervisory Standing:** The CIL provides immediate auditability from the tick level, rendering the proposed five-year phase-in period unnecessary for portfolios governed by a RIF. Failure to evaluate this technically viable and economically significant alternative would constitute a failure to consider a critical aspect of the problem, potentially rendering the final rule vulnerable under the APA.

We urge the Board's quantitative staff to review the empirical "Propagation Proofs" in the attached Appendix, which establish a significant lead-time advantage over traditional Expected Shortfall (ES) models.

Respectfully submitted,

Ade Jinadu  
Research Lead, sumtyme.ai

April 18th 2026

**Subject: Comment Letter on GSIB-Regulatory Capital Rule:  
Risk-Based Capital Surcharges for Global Systemically Important  
Bank Holding Companies; Systemic Risk Report (FR Y-15)  
[Docket No. R-1889; RIN 7100-AH22]**

## **1. Bridging the Ideological Deadlock: Resilience vs. Efficiency**

This comment addresses the proposed revisions to the G-SIB surcharge coefficients and the FR Y-15 reporting requirements. The current rulemaking process has reached a fundamental ideological deadlock: the Board is split between a mandate for systemic resilience and the economic necessity of capital efficiency.

The March 2026 re-proposal made this rift official through Vice Chair Barr's singular public dissent. His resistance to capital reduction highlights a critical flaw in the current framework: the tendency for reactive rules to trigger procyclical selling and credit contraction. By forcing the Board to choose between the restrictiveness of static capital buffers and the technical math of inflation adjustments, the current proposal fails to address the underlying detection lag that creates this 'reactive trap' in the first place.

We submit a Risk-Inception Framework (RIF) called the Causal Inception Layer (CIL), as the definitive bridge to resolve this deadlock. Unlike static capital surcharges, the RIF identifies systemic shifts at the point of causal inception, providing a deterministic safety cushion that is superior to static capital. By treating risk as a deterministic trajectory rather than a statistical guess, the Board can satisfy Vice Chair Barr's demand for proactive tail-risk mitigation while fulfilling Chair Powell's objective of maintaining a lean, globally competitive U.S. banking sector. Failure to evaluate the RIF as a Less Restrictive Alternative (LRA) constitutes a failure to consider a critical aspect of the problem: that systemic risk is a function of detection latency, not just balance sheet size.

## **2. Addressing Vice Chair Barr's Objectives on Tail Risk**

Vice Chair Barr has rightly emphasised that regulatory frameworks must account for 'unforeseen' tail risks. We submit that static capital is an inherently reactive mechanism and a lagging defence that does not address the causal drivers of risk. The CIL provides the proactive resilience required in modern markets by mapping deterministic trajectories without reliance on historical training data or parametric weights. This direct detection of inception-level risk minimises detection latency and satisfies the supervisory requirement for robust tail-risk mitigation while avoiding the procyclicality and economic drag of blunt capital surcharges.

### 3. Risk-Inception Framework: Causal Inception Layer (CIL)

The CIL is a Risk-Inception Framework designed to establish that market volatility is deterministic. It is the visible acceleration of a causal shift that can be mapped with precision from its point of inception. The CIL identifies these shifts and maps the directional trajectory of any publicly traded asset without reliance on historical training data or market context. By leveraging a continuous data stream of publicly traded prices, the framework eliminates periodic retraining and maintains constant structural alignment with market reality. This approach transforms risk from a probabilistic estimate into a deterministic calculation.

The CIL functions as an independent observer of global markets, leveraging bidirectional temporal feedback loops to overcome the paradox of reflexivity. It provides G-SIBs with the optionality to hedge incrementally, bypassing the synchronised selling that regulators aim to prevent. Every directional change is captured through these feedback loops and is auditable from the tick level, with the additional option of initiating observations at later stages of the evolution.

The CIL is governed by a core axiom: all structural changes in financial markets originate at the tick level before propagating across expanding timeframes. The framework operates through four distinct pillars:

- **Causal Identification:** The CIL detects the initial signal at the tick level to identify the precise moment equilibrium shifts. While traditional statistical approaches are forced to wait for "statistical significance" and subsequently categorise these signals as noise, the CIL captures the transition at its point of inception.
- **Structural Propagation:** A signal's validity is contingent on successfully propagating through an ascending temporal hierarchy (Tick → Milliseconds → Seconds → Minutes → Hours → Days).
- **Minimum Threshold:** The CIL requires a minimum propagation threshold of one. If a shift fails to propagate to the adjacent temporal layer, it is identified as a non-causal shift and is discarded as it lacks the structural maturity to define a path.
- **Trajectory Projection:** While traditional models produce a widening 'probabilistic cone' of uncertainty, the CIL generates a non-linear price trajectory based on confirmed propagations.

Every propagation can be logged from the tick-level inception point, allowing risk officers to provide a deterministic rationale for every action. A hedge that is subsequently unwound is not a 'false positive' but a strategic insurance premium. It is a

cost-efficient measure to avoid the destructive feedback loops of synchronised market panic. For example, a G-SIB may initiate an Inception Phase Hedge (e.g. 10% exposure) once a signal achieves 5 minute temporal maturity, followed by a Propagation Phase Hedge at 30 minutes.

#### **4. Modification of FR Y-15 Scoring Mechanics**

Since R-1889 amends the Systemic Risk Report (FR Y-15), we propose that the CIL be formally integrated into the scoring rubric for G-SIBs who provide evidence of its implementation.

**Complexity (Schedule D):** An institution's complexity score currently serves as a proxy for the difficulty of managing a wind-down during a crisis. We propose that an active CIL methodology should serve as a qualitative offset to this score. Complexity is fundamentally a function of causal interconnectedness, where a shift in one business line triggers an unforeseen path in another. As the CIL provides a deterministic and auditable roadmap for risk mitigation, it reduces the complexity burden by identifying the specific propagation path of a crisis before it becomes systemic.

**Interconnectedness (Schedule B):** Current metrics penalise gross outstandings under the assumption that size equals contagion risk. However, this ignores the role of detection latency in systemic failure. A G-SIB's ability to map directional trajectories and hedge incrementally, via the CIL, prevents the "Synchronised Liquidation Trap" where all institutions attempt to deleverage simultaneously. By identifying the causal inception of a market shift, the CIL allows for orderly, non-procyclical risk management. This effectively lowers the bank's contribution to systemic contagion and should be reflected in a downward calibration of the Interconnectedness score.

#### **5. Eliminating the 'Reactive Trap' and the Five-Year Delay**

The Board's current proposal to use daily or quarterly averages to prevent 'window dressing' is merely a more frequent method of looking in the rearview mirror. While averaging may reduce period-end volatility, it remains a retrospective exercise that fails to address risk at inception. The CIL methodology provides continuous supervision capabilities that render such retrospective averages obsolete by identifying systemic shifts as they occur.

Furthermore, the proposed five-year phase-in, with full implementation delayed until 2031, represents an unnecessary period of vulnerability for institutions using RIFs. We propose that the Board establish an Accelerated Resilience Track. Institutions that demonstrate the implementation of a RIF should be permitted to realise capital

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efficiency gains and surcharge reductions immediately. The safety and soundness benefits of inception-level detection are realised on Day 1, making a multi-year delay fundamentally counterproductive to the goal of systemic resilience.

## **6. Conclusion**

The CIL functions as an independent observer that overcomes the paradox of reflexivity. Every directional trajectory is validated through continuous feedback loops built into the framework and is auditable from the tick level. This provides a deterministic rationale that satisfies the requirements of both risk officers and institutional auditors. By transitioning from a probabilistic guess to a traceable causal chain, the banking system moves from a state of reactive fear to one of measured, evidence-based resilience.

The CIL represents a significant and economically impactful alternative. It specifically addresses the \$33 billion misallocation in Common Equity Tier 1 (CET1) capital. This capital currently serves as a dormant buffer against model latency. The Agencies' March 2026 impact analysis identifies this 3.8% reduction as a necessary move toward economic efficiency. However, we submit that this capital is presently utilised to compensate for detection lag. This risk can be more effectively managed via inception-level detection. By implementing a RIF, the Board can realise this \$33 billion in capital efficiency without sacrificing safety and market stability.

The Board is at a crossroads. To ignore the existence of a deterministic, causal alternative in favor of maintaining a 1000 page framework built on lagging statistical models would be a failure of the Board's mandate. We submit that failure to evaluate a RIF as a Less Restrictive Alternative (LRA) would render the final rule structurally inadequate for the modern financial landscape. Furthermore, such an oversight would leave the rule legally vulnerable as an arbitrary and capricious action under the Administrative Procedure Act. The Board has the opportunity to resolve its internal deadlock by adopting a framework that delivers the resilience the Vice Chair demands and the efficiency the Chair requires. We urge the Board to formalise a pathway for the integration of Risk-Inception Frameworks.

Respectfully submitted,

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*Technical documentation and supporting empirical data are available in the Appendix, with further granular documentation available upon request for the Board's quantitative staff.*

## APPENDIX

### Propagation Proofs: CIL Lead-Time vs. Expected Shortfall (ES)

These proofs quantify the structural detection latency gap between the CIL and traditional 10 day Expected Shortfall (ES) models currently utilised by the Agencies. The data establishes that by the time ES-based triggers breach regulatory thresholds, the CIL has already confirmed structural propagation across the temporal hierarchy.

During high-volatility events, the CIL identified the precise moment of causal inception weeks before traditional measures reacted. In the case of the COVID-19 pandemic, the framework provided a 35 day lead time, while the Q4 2025 Crypto Decline was identified with a 37 day lead time. This structural advantage enables non-procyclical risk mitigation long before traditional regulatory triggers are breached. Furthermore, during the Liberation Day Tariff Announcement, ES remained directionally blind despite a 124.6% price move, whereas the CIL mapped a 121.9% causal trajectory from detection.

### Deterministic Capital Efficiency

Unlike ES, which consistently overstates risk in positive market conditions, the CIL prevents the unnecessary lock-up of Tier 1 capital by identifying shifts that lack structural maturity. This allows for an Accelerated Resilience Track where capital efficiency is realised on Day One without sacrificing systemic safety.

Event	Ticker	Drawdown	CIL Mitigation
April 2025 Tariff Announcement	VIXY	124.6%	98%
Yen Carry Trade Unwind	USD/JPY	83.0%	99%
COVID-19 Pandemic	MGM	13.7%	99%
Q4 2025 Crypto Decline	BTCUSDT	36.1%	98%
2026 Iran War	UAL	26.9%	97%

**Note:** We have started the observation of directional trajectories from the 1 second level for these examples, however the true inception point is at the tick level.

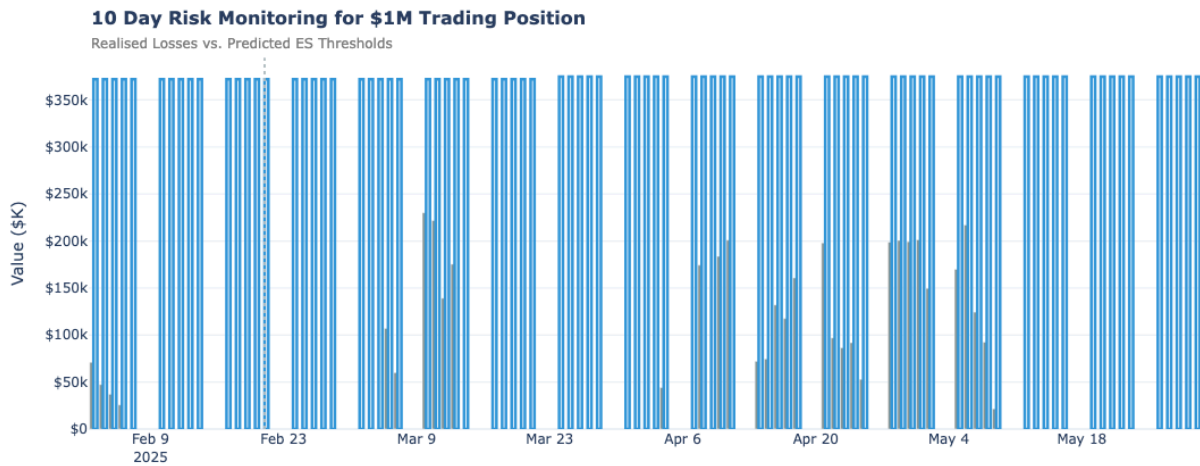
Event	Liberation Day Tariff Announcement
Ticker	ProShares VIX Short-Term Futures ETF
Change Duration	48 Days
Change (%)	124.6%
% of Change Explained by the CIL	121.9%
Change Identified by the CIL	98%
Observation	ES is directionally blind and overstates risk.

The following data establishes the deterministic causal trajectory of VIXY's time series. It demonstrates the structural propagation of change from the 1 second observation through the temporal hierarchy, transforming market volatility into a traceable and deterministic calculation.

Propagation Level	Datetime	Price	% Change From 1s	Propagation Path
0	2025-02-21 14:05:38	40.7	0.00	Observed from 1s
1	2025-02-21 14:30:30	40.855	0.38	1s → 5s
2	2025-02-21 14:31:30	40.855	0.38	5s → 15s
3	2025-02-21 14:31:30	40.8813	0.45	15s → 30s
4	2025-02-21 14:32:00	40.95	0.61	30s → 1m
5	2025-02-21 18:00:00	42.33	4.00	1m → 5m
6	2025-02-21 18:10:00	42.72	4.96	5m → 15m
7	2025-02-25 10:30:00	44.45	9.21	15m → 30m
8	2025-03-10 04:00:00	51.16	25.70	30m → 60m
9	2025-04-03 10:00:00	54.96	35.04	60m → 120m
10	2025-04-03 20:00:00	61.16	50.27	120m → 240m
11	2025-04-04 00:00:00	60.7	49.14	240m → 360m
12	2025-04-07 00:00:00	73.16	79.75	360m → 720m
13	2025-04-09 12:01:45	90.33	121.94	720m → Trough

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The following chart quantifies the Detection Latency Gap by contrasting the CIL's performance with the Expected Shortfall (ES) model for VIXY's time series. It establishes that while ES remained directionally blind to the 124.6% price move amplified by the Tariff Announcement, the CIL confirmed structural propagation to explain 121.9% of the causal trajectory. This demonstrates the CIL's capacity to provide a deterministic rationale for risk mitigation even when traditional statistical measures fail to trigger.

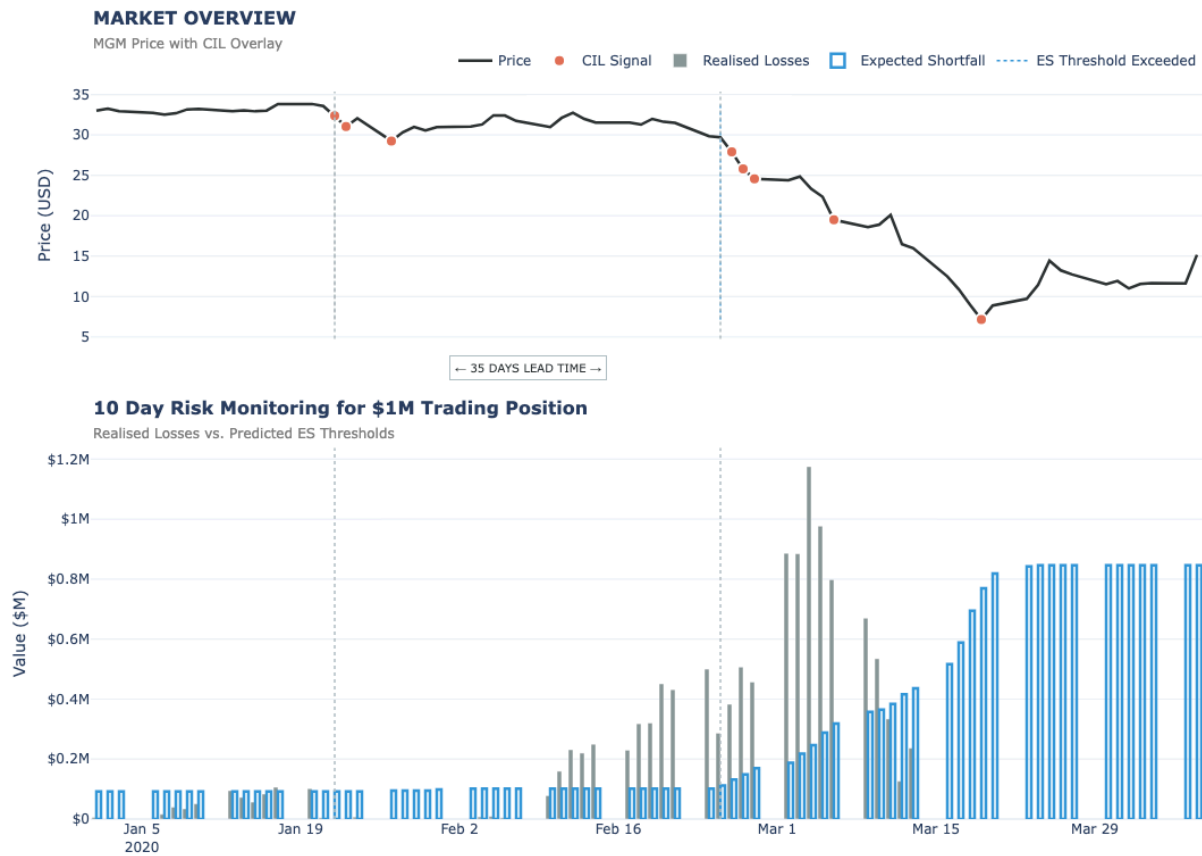


Event	COVID-19 Market Volatility
Ticker	MGM Resorts
Drawdown Duration	60 Days
Drawdown (%)	82.95%
% of Change Explained by the CIL	82.46%
Drawdown Mitigated by the CIL	99%
Detection Lead Time over Expected Shortfall	35 Days

The following data establishes the deterministic causal trajectory of MGM's time series. It demonstrates the structural propagation of risk from the 1 second observation through the temporal hierarchy, transforming market volatility into a traceable and deterministic calculation.

Propagation Level	Datetime	Price	% Change From 1s	Propagation Path
0	2020-01-21 13:46:31	33.65	0.00	Observed from 1s
1	2020-01-21 13:54:40	33.65	0.00	1s → 5s
2	2020-01-21 13:54:45	33.65	0.00	5s → 15s
3	2020-01-21 13:55:00	33.65	0.00	15s → 30s
4	2020-01-21 13:55:00	33.65	0.00	30s → 1m
5	2020-01-21 14:40:00	33.075	-1.71	1m → 5m
6	2020-01-21 19:00:00	32.715	-2.78	5m → 15m
7	2020-01-22 16:00:00	32.21	-4.28	15m → 30m
8	2020-01-27 11:00:00	29.92	-11.08	30m → 60m
9	2020-02-25 16:00:00	29.18	-13.28	60m → 120m
10	2020-02-27 12:00:00	26.37	-21.63	120m → 240m
11	2020-02-28 12:00:00	25	-25.71	240m → 360m
12	2020-03-06 00:00:00	20.59	-38.81	360m → 720m
13	2020-03-18 17:30:23	5.90	-82.46	720m → Trough

The following chart quantifies the Detection Latency Gap by contrasting the CIL's performance with the Expected Shortfall (ES) model for MGM's time series. It establishes that the CIL confirmed structural propagation 35 days before traditional regulatory triggers reacted, providing an immediate and auditable signal for risk mitigation while ES remained directionally blind to the inception of the COVID-19 market volatility.

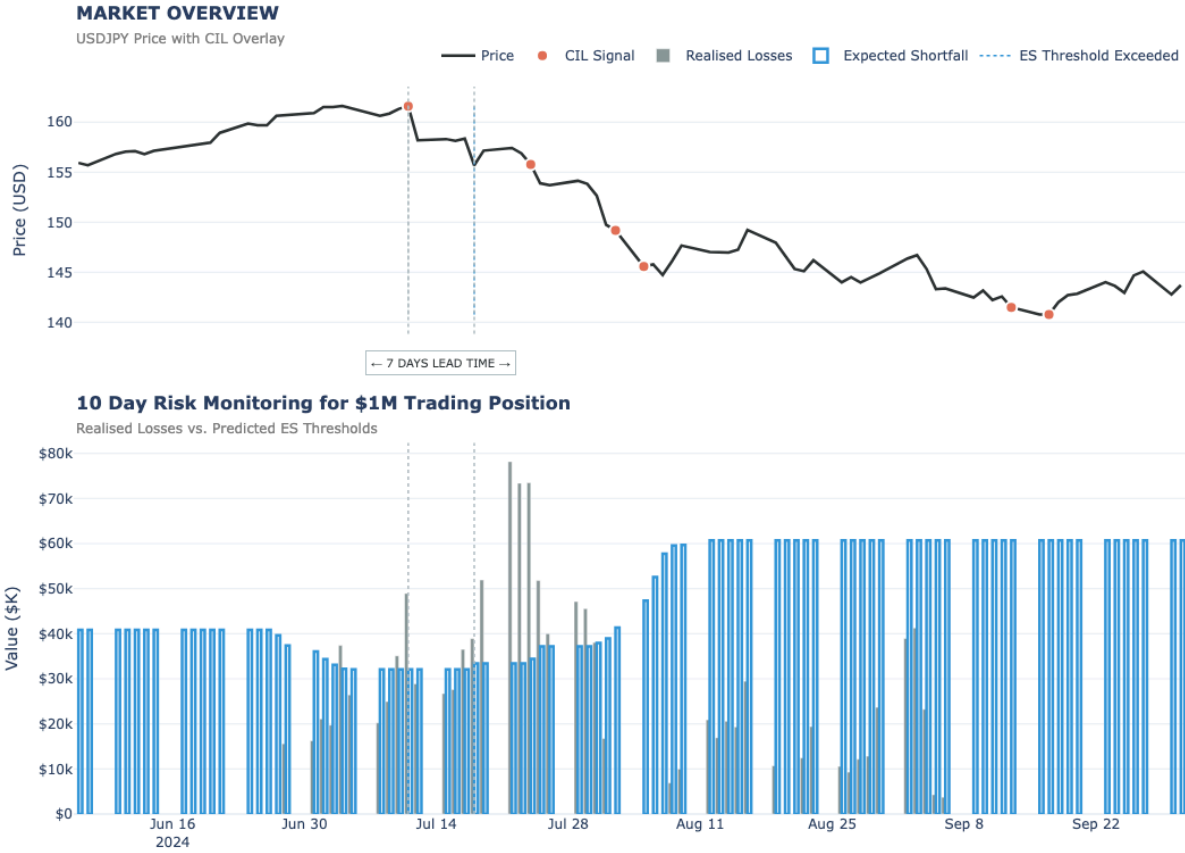


Event	Yen Carry Trade Unwind
Ticker	USD/JPY
Drawdown Duration	74 Days
Drawdown (%)	13.73%
% of Change Explained by the CIL	13.57%
Drawdown Mitigated by the CIL	99%
Detection Lead Time over Expected Shortfall	7 Days

The following data establishes the deterministic causal trajectory of USD/JPY's time series. It demonstrates the structural propagation of risk from the 1 second observation through the temporal hierarchy, transforming market volatility into a traceable and deterministic calculation.

Propagation Level	Datetime	Price	% Change from 1s	Propagation Path
0	2024-07-11 07:16:07	161.707	0.00	Observed from 1s
1	2024-07-11 07:20:40	161.677	-0.02%	1s → 5s
2	2024-07-11 07:23:20	161.655	-0.03%	5s → 10s
3	2024-07-11 07:24:45	161.636	-0.04%	10s → 15s
4	2024-07-11 07:36:30	161.574	-0.08%	15s → 30s
5	2024-07-11 12:31:00	160.864	-0.52%	30s → 1m
6	2024-07-11 12:45:00	158.752	-1.83%	1m → 5m
7	2024-07-11 12:50:00	158.503	-1.98%	5m → 10m
8	2024-07-11 13:00:00	158.642	-1.90%	10m → 15m
9	2024-07-11 15:00:00	158.55	-1.95%	15m → 30m
10	2024-07-23 18:00:00	155.684	-3.72%	30m → 60m
11	2024-08-02 14:00:00	147.055	-9.06%	60m → 120m
12	2024-08-05 04:00:00	144.356	-10.73%	120m → 240m
13	2024-09-13 00:00:00	141.512	-12.49%	240m → 360m
14	2024-09-16 09:00:00	139.75	-13.57	360m → Trough

The following chart quantifies the Detection Latency Gap by contrasting the CIL's performance with the Expected Shortfall (ES) model for USD/JPY's time series. While ES remains directionally blind to the inception of the carry trade unwind, the CIL confirms structural propagation to provide an immediate, auditable signal for non-procyclical risk mitigation.

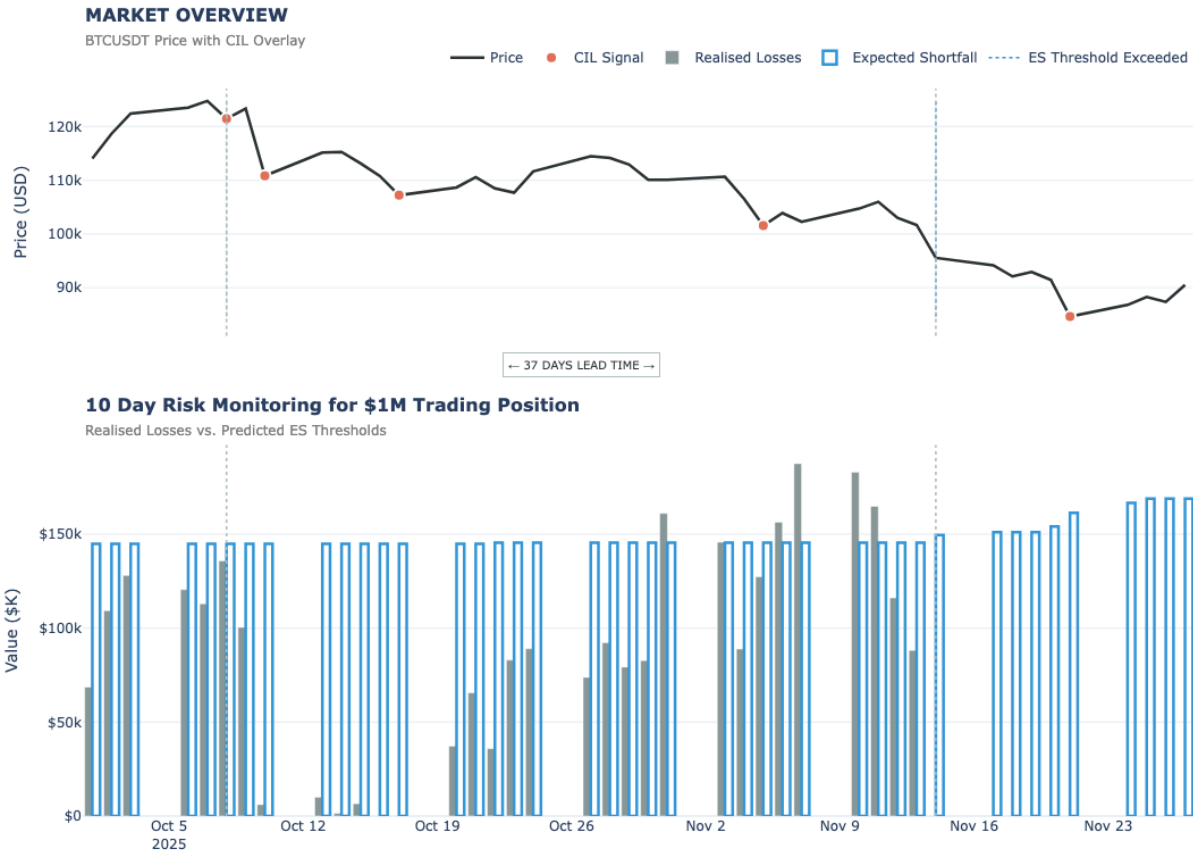


Event	Q4 2025 Crypto Decline
Ticker	BTCUSDT
Drawdown Duration	46 Days
Drawdown (%)	36.13%
% of Change Explained by the CIL	35.34%
Drawdown Mitigated by the CIL	98%
Detection Lead Time over Expected Shortfall	37 Days

The following data establishes the deterministic causal trajectory of BTCUSDT's time series. It demonstrates the structural propagation of risk from the 1 second observation through the temporal hierarchy, transforming market volatility into a traceable and deterministic calculation.

Propagation Level	Datetime	Price	% Change from 1s	Propagation Path
0	2025-10-07 13:31:15	124664.09	0	Observed from 1s
1	2025-10-07 13:39:35	124211.71	-0.36	1s → 5s
2	2025-10-07 13:42:30	124100	-0.45	5s → 15s
3	2025-10-07 13:43:00	124036.69	-0.5	15s → 30s
4	2025-10-07 13:44:00	123838.8	-0.66	30s → 1m
5	2025-10-07 14:10:00	123088.36	-1.26	1m → 2m
6	2025-10-07 23:35:00	121537.99	-2.5	2m → 5m
7	2025-10-10 17:00:00	118205.61	-5.18	5m → 10m
8	2025-10-16 14:30:00	110343.42	-11.48	10m → 30m
9	2025-10-16 21:00:00	107838	-13.49	30m → 60m
10	2025-11-04 18:00:00	106457.24	-14.6	60m → 120m
11	2025-11-21 12:29:25	80600	-35.34	120m - Trough

The following chart quantifies the Detection Latency Gap by contrasting the CIL's performance with the Expected Shortfall (ES) model for BTCUSDT's time series. It establishes that the CIL confirmed structural propagation 37 days before traditional regulatory triggers reacted, providing an auditable signal for proactive mitigation while ES remained directionally blind to the accelerating drawdown.

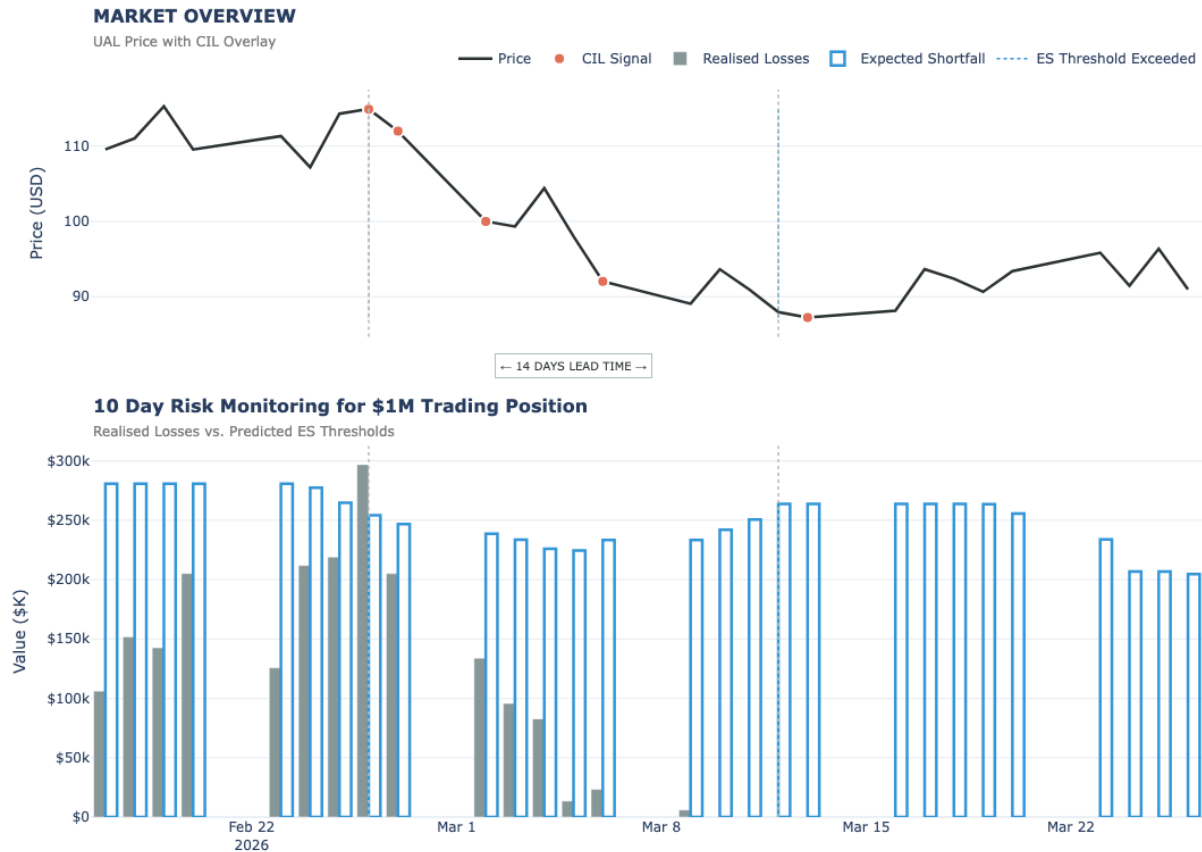


Event	2026 Iran War
Ticker	United Airlines
Drawdown Duration	8 Days
Drawdown (%)	26.88%
% of Change Explained by the CIL	26.14%
Drawdown Mitigated by the CIL	97%
Detection Lead Time over Expected Shortfall	14 Days

The following data establishes the deterministic causal trajectory of UAL's time series. It demonstrates the structural propagation of risk from the 1 second observation through the temporal hierarchy, transforming market volatility into a traceable and deterministic calculation.

Propagation Level	Datetime	Price	% Change from 1s	Propagation Path
0	2026-02-26 20:48:11	116.415	0	Observed from 1s
1	2026-02-26 20:50:40	116.17	-0.21	1s → 5s
2	2026-02-27 11:42:20	113.52	-2.48	5s → 10s
3	2026-02-27 14:30:30	110.85	-4.78	10s → 30s
4	2026-02-27 14:32:00	110.475	-5.102	30s → 1m
5	2026-02-27 17:05:00	106.36	-8.63	1m → 5m
6	2026-03-02 09:10:00	100.71	-13.49	5m → 10m
7	2026-03-02 09:30:00	101.07	-13.18	10m → 30m
8	2026-03-05 16:00:00	94.9	-18.48	30m → 60m
9	2026-03-06 14:40:04	85.98	-26.14	60m → Trough

The following chart quantifies the Detection Latency Gap by contrasting the CIL's performance with the Expected Shortfall (ES) model for UAL's time series. It demonstrates the CIL's capacity to confirm structural propagation 14 days before traditional regulatory triggers reacted, providing an immediate, auditable signal for risk mitigation while ES remained directionally blind to the inception of the 2026 Iran War drawdown.



## Technical Overview

### Core Assumption: High-Frequency Inception

The CIL is built on the assumption that all multiscale changes originate at the highest observable time frequency before evolving into macro-change. By monitoring the micro-scale in real-time, the CIL identifies a causal directional shift at its point of inception.

- **Lead-Time Advantage:** Identifying micro-signals provides the foresight needed to stay ahead of macro-scale effects.
- **Early Detection:** The CIL captures the causal signal before the transition is recognised by statistical approaches or manifests at macro-scale resolutions (days or weeks), enabling intervention before the system reaches a critical transition.

### Autonomous Causal Discovery (Category Theory)

The CIL leverages Category Theory to autonomously map the underlying causal structure of a non-stationary system using unlabelled, independent data streams.

- **Structural Linking:** Rather than seeking statistical correlations, the CIL identifies the directional morphisms that mathematically link an initial micro-signal to a macro-effect.
- **Global Function:** This process generates a unified global function that reconstructs the system's state space. This ensures the model remains consistent with the rules of the system, providing a stable framework for decision-making regardless of market regime or price volatility.

### Topologically Lossless Causal Chains

The CIL maintains 100% causal accuracy across scale transitions. While standard models typically "average out" micro-data to find macro-trends, we reject this lossy approach. The CIL employs Topologically Lossless Causal Chains to preserve the specific micro-interactions foundational to macro-change.

- **Causal Signal:** Micro-activity that successfully maps to a morphism across scales, maintaining its structural identity as it matures.
- **Non-Causal Data:** High-entropy micro-activity that fails to form a structural link is systematically filtered without losing causal information.

This allows the CIL to extract deterministic causal signals from high-entropy environments, providing an auditable bridge from micro-inception to macro-reality.

### **Autonomous World Modelling (Adaptive Takens' Theorem)**

To meet the demands of real-time detection, the CIL advances Takens' Theorem to function in non-stationary, high-entropy environments.

- **Dynamic State Projection:** The CIL reconstructs a multi-dimensional state space from a single time series using a learned global function; unlike models that fail due to numerical drift or fixed attractors, this approach maps the morphisms (rules of transformation) to achieve Structural Determinism by identifying the inevitable pathway of a transition even when the data stream appears chaotic.
- **Continuous Regime Adaptation:** The CIL uses continuous data streams and bidirectional feedback loops to constantly update its understanding of an environment's underlying structure. This means structural events typically labelled as "Black Swans" are not a surprise, but an observable, trackable transformation of the system's structural evolution.

### **Identifying Causal Initiation and Filtration**

Using the autonomous world model, the CIL determines whether a micro-fluctuation signifies the initiation of a new causal path or the persistence of an established trajectory.

- **Lossless Filtration:** By understanding the system's underlying structure, the CIL identifies which high-frequency data is non-causal and which represents an important causal transition.
- **Solving the Computational Bottleneck:** High-frequency monitoring is traditionally resource-heavy. The CIL maintains performance speed by filtering high-frequency data once its causal transition is complete. This allows for a perfect mathematical bridge across scales without the burden of storing or processing non-causal data.