QSIA™

Structural Analysis for Complex Systems

Structural Analysis

Archegos Capital Management

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Classification	Case Study: Hedge Fund Domain
Methodology	Structural Analysis for Complex Systems (QSIA™)
Framework	QuantoMathics™

Spectra Ventures, PLLC is the legal entity delivering this analysis;
QuantoMathics™ and QSIA™ are its brands (framework and methodology).

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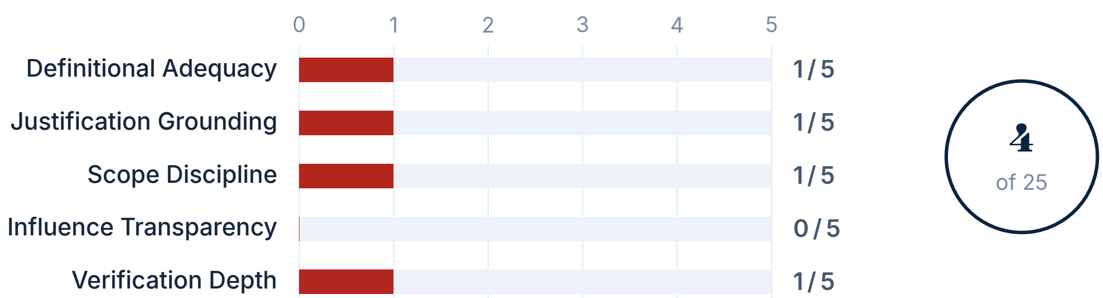
1 Executive Summary

This report applies the Structural Analysis (QSIA) methodology to Archegos Capital Management, the family office whose roughly $160 billion of concentrated equity exposure unwound in a single week in March 2021, causing more than $10 billion of losses at its lending banks.[1] It examines a single question: whether the structure through which that exposure was built and financed could sustain its own integrity, or whether it was configured so that no party, including the fund's lenders, could see what was being carried until it failed.

The analysis finds materially deficient structural integrity on all five conditions, with one scored at the floor. The defining feature of this case is not a wrong bet or a sophisticated model that broke; it is that the architecture was configured so that the aggregate exposure was invisible to every party positioned to constrain it.

Diagnostic Condition	Score
Definitional Adequacy	1 / 5
Justification Grounding	1 / 5
Scope Discipline	1 / 5
Influence Transparency	0 / 5
Verification Depth	1 / 5
Composite	**4 / 25**



Condition scores (0 to 5), colored by severity, with the composite profile.

The root structural failure is transparency. The exposure was built through total-return swaps spread across several prime brokers that did not communicate, while the entity's status as a family office removed the disclosure a fund would face. The result was an architecture in which no exposed party, the lenders, the regulators, or the fund's own counterparties, had any mechanism to see the aggregate position. Scope (concentration and leverage beyond what the positions' liquidity could bear) was the amplifier: the opacity let the scope grow unchecked. The other conditions follow.

A composite of 4/25 records a structure whose integrity depended on the aggregate never being seen. When a single position broke, the margin calls arrived at every lender at once, each discovering the true scale only at default, and the unwind was a race in which the slowest lenders absorbed the losses. The structure had no internal correction; the correction was the lenders liquidating. The relationship of this case to its companion study of Long-Term Capital Management is drawn out in the conclusion: the same family of structural failures, but a different root, transparency rather than grounding, and a transparency failure that was engineered rather than emergent.

2 About the Methodology

2.1 Structural Analysis for Complex Systems

The Structural Analysis (QSIA) evaluates whether a complex system can sustain operation without destabilizing itself, scale without structural degradation, preserve definitional adequacy under stress, and maintain verification pathways. The methodology is domain-invariant: the same diagnostic framework applied here is applied to governance architectures, software systems, medical-device manufacturers, and other funds.

By a structure's *configuration* this report means how its positions are arranged (their concentration, the leverage against them, and the liquidity their size assumes) and how its controls and disclosures are arranged (what each party with exposure can see and constrain), as distinct from its measured outputs (reported returns, posted margin, the appearance of separate and contained relationships). The instruments that watch a fund read the outputs. The failure documented here was in the configuration, specifically in what the configuration allowed any party to see.

2.2 Methodological Scope

The QSIA diagnoses *absolute* structural properties: whether a system satisfies the conditions required for sustained coherent operation. It does not rank Archegos against other funds, assign legal liability, or adjudicate intent. Where this report refers to findings that are matters of public record (regulatory charges, a criminal conviction), it does so as evidence of the structure's operation, not as a legal conclusion of its own. The diagnosis is structural.

2.3 The Five Diagnostic Conditions

1. **Definitional Adequacy.** The entity's declared identity must correspond to its actual operating character. An entity that presents as one kind of thing (a private family office) while operating as another (a systemically significant leveraged fund) fails this condition.
2. **Justification Grounding.** Irreversible commitments, including the extension of leverage, must rest on parameters independently established before the commitment. Credit extended on information that does not include the borrower's aggregate exposure is grounded on an incomplete base.
3. **Scope Discipline.** Leverage and position size must remain within what the capital base and the available market liquidity can govern. Concentration into positions too large to exit without moving their price against the holder breaches the scope boundary.
4. **Influence Transparency.** The declared structure must correspond to the actual one, and every party with exposure must be able to see the aggregate. When exposure is fragmented across counterparties so that none can see the whole, and disclosure that would assemble it is absent, this condition fails at the level of the system.
5. **Verification Depth.** Under a shock to its positions, the structure must preserve its integrity or correct itself without external rescue. A structure with no buffer and no internal path back to stability, whose only correction is external liquidation, exhibits no depth.

2.4 Scope and Limitations

This analysis treats Archegos as a structural system subject to the same integrity conditions as any complex system that claims to sustain coherent operation. It does not evaluate the merits of any individual trade or offer investment advice. All evidence is from public-domain sources: the independent review commissioned by one of the lending banks, regulatory filings, and the public record of the subsequent prosecution. Figures vary by source and reporting date and are cited at point of use. The full per-condition derivation supporting each score is held in the internal companion to this report; this version presents the scores and their basis.

3 Structural Map of the Architecture

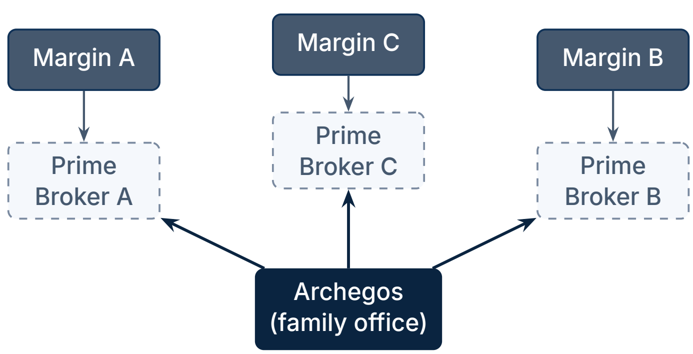
3.1 Component Inventory

Component	Instance	Classification	Structural Function
Entity	Family office (Archegos)	Foundation	Disclosure posture, capital base
Positions	Concentrated equity in a handful of names	Operational	Revenue and risk units
Instrument	Total-return swaps with prime brokers	Operational	Synthetic, undisclosed exposure
Financing counterparties	Several prime brokers, bilateral	External interface	Leverage and the only external check
Margin / risk controls	Per-broker margin and limits	Internal verification	Declared checking layer (per broker)
Aggregate exposure	∼$160 billion gross	Operational	The figure no party could see

Table 1. Component inventory of the Archegos architecture at its peak (early 2021).

3.2 The Declared Structure

To each lending bank, Archegos presented a self-contained, separately margined financing relationship: a set of total-return swaps on which the bank held the underlying shares and Archegos posted margin. Each bank saw a book it believed it understood and could margin. The declared picture, from any single bank's vantage, was several independent, contained relationships, each within that bank's own risk limits.

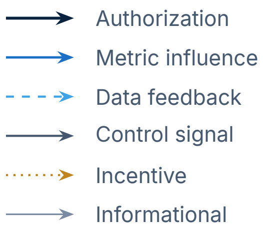


Declared structure: several independent, separately margined swap relationships. Each prime broker saw and margined only its own bilateral book.

Node classes:

Decision Model Metric Data Control Verification External

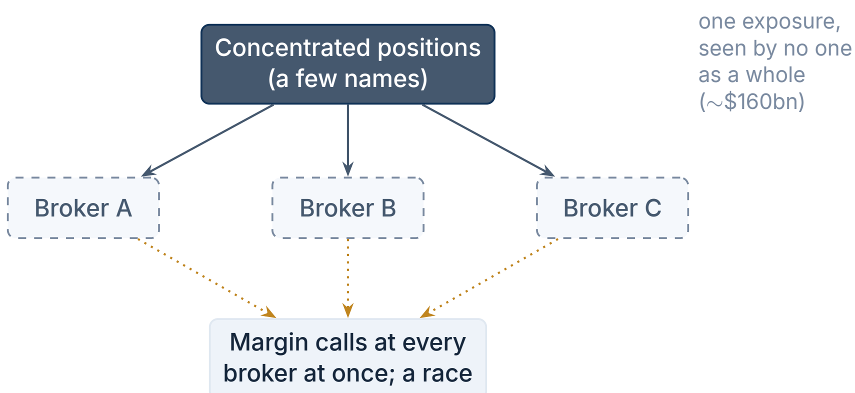
Edge types:



3.3 Undocumented Dependencies: The Gap Between Design and Operation

The following dependencies were decisive and absent from the declared picture each bank held.

- **The shared underlying.** The brokers' separately margined books were not independent. They referenced the same handful of concentrated names, so they were one exposure expressed many times, not many exposures. A move in those names moved every broker's book at once.
- **The invisible aggregate.** The total-return-swap structure meant the banks held the shares and Archegos disclosed nothing; the family-office status removed the position disclosure a fund would file. No party, the banks, the regulators, or Archegos's counterparties as a group, had any mechanism to see the roughly \$160 billion aggregate.[2]
- **Concentration beyond the float.** The positions were large relative to the traded float of the names involved, so they could not be exited without moving the price against the holder, the same size-as-obstacle that defines a scope breach.
- **The aggregate revealed only at default.** Because no party could see the whole in advance, the true scale became visible only when the margin calls went unmet and the banks compared notes. Discovery and default coincided.



the slowest lenders absorbed the loss

Actual governing dependencies. The separately margined books all rested on the same concentrated positions, so they were a single exposure no party could see whole. A shock to the largest name triggered margin calls at every broker at once, and the unwind was a race.

These are not incidental omissions. They are the distance between the structure as declared (several contained, independent relationships) and the structure as it operated (one concentrated exposure, financed beyond its liquidity, invisible in aggregate to everyone with a stake in it).

4 Evidentiary Record

This section presents the public-record evidence. The structural analysis follows in Section 5.

2012	Bill Hwang settles U.S. regulatory charges over his prior firm and reorganizes as Archegos, a family office managing his own capital.
Mar 2020	Archegos holds roughly $1.5 billion of capital against about $10 billion of exposure.
2020 to 2021	Concentrated positions are built through total-return swaps across several prime brokers; value grows past $36 billion, gross exposure to roughly $160 billion.
22 Mar 2021	ViacomCBS, the largest position, announces a stock offering and the price falls.
25 Mar 2021	A call among the prime brokers to coordinate an orderly unwind fails.
26 Mar 2021	Banks begin liquidating blocks; the concentrated positions fall sharply and margin calls go unmet.
2021	Lender losses exceed $10 billion (Credit Suisse ∼$5.5bn, Nomura ∼$2.9bn); Archegos is wiped out.
Jul 2021	Credit Suisse's independent review finds a persistent failure of risk management in its prime-services business.
Nov 2024	Bill Hwang is convicted of fraud and market manipulation and sentenced to eighteen years.

From reorganization to terminal failure. The structure that built roughly $160 billion of exposure unseen unwound in a single week once one position broke.

4.1 The Entity and the Instrument

Archegos was a family office: an entity managing one person's wealth, and so exempt from the registration and position disclosure that a hedge fund of comparable size and market impact would face. It built its exposure not by buying shares outright but through total-return swaps with prime brokers, under which the bank bought and held the shares and Archegos received the economic gain or loss against posted margin.[3] The arrangement had a structural consequence: the bank that wrote a swap saw its own exposure, and no party saw the sum across all the banks.

4.2 The Scale and the Concentration

By early 2021 Archegos had grown from about $1.5 billion of capital and $10 billion of exposure a year earlier to a value of more than $36 billion against roughly $160 billion of gross exposure, a leverage on the order of four to five times, concentrated in a small number of names of which ViacomCBS was the largest. The positions were large relative to the traded float of those names.

4.3 The Trigger and the Unwind

In late March 2021 ViacomCBS announced a stock offering and its price, which had risen sharply, fell. The decline in the concentrated positions triggered margin calls Archegos could not meet. On March 25 a call among the prime brokers to coordinate an orderly unwind failed; beginning March 26 the banks sold the underlying shares in large blocks. The lenders that moved first limited their losses; the lenders that moved last absorbed the most.[4]

4.4 The Losses and the Public Findings

Lender losses exceeded $10 billion: Credit Suisse about $5.5 billion, Nomura about $2.9 billion, with smaller losses at other banks; Archegos itself was wiped out. Credit Suisse's own independent review, conducted by outside counsel and published in July 2021, found a persistent failure of risk management in its prime-services business and a lack of risk escalation.[5] In 2022 U.S. authorities charged the fund's principal and others; in 2024 the principal was convicted of fraud and market manipulation and sentenced to eighteen years, with restitution exceeding $9 billion.[6]

4.5 What the Record Shows

Each lending bank, viewed on its own, was running a margined book it believed it could manage. The structure that defeated them was not visible from any single vantage: the books were one concentrated exposure, financed beyond its liquidity, that no party could see whole. The trigger was one position breaking. The cause was a configuration in which the aggregate was invisible by design.

5 Condition 1: Definitional Adequacy

Definitional adequacy requires that the entity's declared identity correspond to its actual operating character. Archegos was, in legal form, a family office; in operation, it was a systemically significant leveraged fund whose failure cost its lenders more than $10 billion.

5.1 The Family-Office Identity

The declared identity, a private office managing one person's wealth, carried implications: limited disclosure, limited systemic relevance, a small and contained presence. The actual character, roughly $160 billion of concentrated, leveraged exposure spread across the world's largest prime brokers, contradicted each of those implications. The entity had a genuine and consistent legal identity; the divergence was between what that identity implied and what the entity actually was.

> Finding: The declared identity (a private family office) diverged sharply from the actual character (a systemically significant leveraged fund). The divergence is independently observable in the gap between the entity's disclosure posture and the market impact its failure produced.

5.2 A Distinct Condition With a Shared Cause

This condition is causally connected to the transparency root: the family-office identity was part of how the aggregate exposure stayed invisible, since that status removed disclosure a fund would file. But definitional adequacy is a distinct condition, scored on its own evidence, the gap between declared and actual character, not a relabeling of the transparency failure. The identity question would stand even if every broker had seen the whole: an entity of this scale and impact presenting as a private office is a definitional divergence in its own right.

6 Condition 2: Justification Grounding

This condition assesses whether irreversible commitments rest on parameters independently established before the commitment. The relevant commitment here is the extension of leverage by the prime brokers.

6.1 Credit Grounded on Partial Information

Each bank extended leverage to Archegos on the basis of the book it could see, its own. None could ground its credit decision in the borrower's aggregate exposure, because no mechanism made that aggregate available. The grounding for an enormous, irreversible extension of leverage was therefore incomplete by construction: each lender was grounding on a fraction of the relevant fact.

> Finding: Leverage was extended on per-broker margin and credit models grounded on partial information. The parameter that mattered most, the borrower's aggregate exposure and concentration, was not part of any lender's grounding, because the structure did not make it available.

6.2 Downstream of the Transparency Root

Grounding fails here as a consequence of the transparency root, though it is independently evidenced. Credit models and margin frameworks existed at each bank and functioned on the information they had; what they lacked was the aggregate, and that lack is how the transparency failure shows up in the lenders' credit decisions. Grounding is a distinct condition, the soundness of the basis for commitment, driven here by the same cause.

7 Condition 3: Scope Discipline

Scope discipline requires that leverage and position size remain within what the capital base and the available market liquidity can govern. Archegos breached the boundary on both counts.

7.1 Leverage and Concentration

Roughly $160 billion of gross exposure against a value of more than $36 billion is a leverage on the order of four to five times, concentrated in a handful of names rather than diversified. Concentration removes the diversification that would otherwise absorb a shock to any single position, so the leverage and the concentration compounded one another.

7.2 Size Beyond the Float

The positions were large relative to the traded float of the names involved. A holder that large cannot exit without moving the price against itself, and cannot be liquidated by its lenders without the same effect, which is why the forced unwind drove the concentrated names down sharply and turned the lenders' exit into a race. Size had become its own obstacle.

> Finding: Exposure was leveraged to roughly four to five times and concentrated into a few names at sizes large relative to their float, beyond what the capital base or the market could govern. The forced liquidation moved the prices against the sellers, confirming the scope breach.

7.3 The Amplifier of the Root

Scope discipline is independently evidenced, by the leverage ratio and the position-to-float figures, and is causally downstream of the transparency root: because no party could see the aggregate (Condition 4), no party could constrain the scope as it grew. The two are distinct conditions with a shared cause. Repairing position limits at any single broker, without the aggregate visibility that would let the total be constrained, would address the amplifier while leaving the root operative.

8 Condition 4: Influence Transparency

This condition examines whether the declared structure corresponds to the actual one, and whether every party with exposure can see the aggregate. For Archegos it failed at the level of the system, and it is the root of this case.

8.1 An Aggregate Invisible by Design

The exposure was built through total-return swaps across several prime brokers that did not share information, while the family-office status removed the disclosure that would otherwise have assembled the picture. The consequence was not that the aggregate was hard to see; it was that no mechanism existed by which any exposed party could see it. Each broker held one piece. The sum existed nowhere that anyone could read it.

> Finding (Critical): No party with exposure, the lending banks, the regulators, or the counterparties as a group, had any mechanism to see Archegos's aggregate position. The structure was configured so that the whole was visible to no one until default forced the pieces together.

8.2 Engineered, Not Merely Emergent

The opacity here was not a byproduct of complexity; it was a property of the design. By engineered we mean structural, not intentional: the choice of total-return swaps over outright ownership, spread across multiple brokers, and the family-office posture that removed disclosure, together produced a structure whose defining property was that the aggregate could not be assembled, independent of anyone's intent. The public record of the subsequent prosecution, which described false statements to the fund's counterparties among the charged conduct, indicates the opacity was actively maintained. For the structural diagnosis the decisive point is prior to intent: the architecture had no aggregate-transparency mechanism to begin with.

8.3 The Evaluation Problem

Each bank evaluated its exposure against the book it could see and judged it manageable. The evaluation was sound on its own terms and blind to the only term that mattered, the aggregate. A structure in which every party's assessment is locally reasonable and collectively blind is one in which the failure is invisible until it arrives.

9 Condition 5: Verification Depth

Verification Depth tests whether the structure preserves its integrity, or corrects itself, under a shock, without external rescue.

9.1 No Buffer, No Internal Correction

When the largest position fell, the structure had no buffer sized to the loss and no internal path back to stability. The fund was leveraged near the limit of what its margin allowed, so a move against the concentrated book produced margin calls it could not meet, and it had no capacity to de-risk into the falling, illiquid names without realizing the loss it was trying to avoid.

> Finding (Critical): Under the shock the structure had no internal mechanism to return to stability. The correction was entirely external, the lending banks liquidating the positions, and it was disorderly because each lender discovered the aggregate only as it acted.

9.2 Correction From Outside, and a Race

The only correction available was external liquidation, and because no party had seen the aggregate in advance, that correction arrived as a race rather than an orderly unwind: the banks that sold first preserved capital, and the banks that sold last absorbed the losses. A structure whose sole correction is external, and whose external correctors are themselves blind to its scale until they act, has no depth.

> Structural Observation: Verification Depth is where the other conditions are tested dynamically. Archegos's depth failure is causally downstream of the others, the point at which the transparency, scope, and grounding failures activate together under a shock, with no buffer and no internal correction. It is independently evidenced, by the absent buffer and the wholly external, disorderly unwind, and it is scored on that evidence.

10 Deep Structural Diagnosis

10.1 The Root and Its Propagation

The root structural failure is transparency (Condition 4). The architecture was configured so that no exposed party could see the aggregate. From that single property the others follow:

1. **Transparency (Condition 4)** → the exposure is fragmented across non-communicating brokers and shielded by the family-office posture, so the aggregate is visible to no one. This is the root.
2. **Scope (Condition 3)** → because no party can see the total, no party can constrain it, and the leverage and concentration grow beyond what capital and liquidity can govern.
3. **Grounding (Condition 2)** → because the aggregate is invisible, the lenders extend leverage grounded on partial information.
4. **Definition (Condition 1)** → the family-office identity that helps keep the aggregate invisible is itself a divergence between declared and actual character.
5. **Depth (Condition 5)** → when one position breaks, the failures activate together, with no buffer and no internal correction, and the wholly external unwind is disorderly because the aggregate was never seen.

10.2 The Reinforcing Dynamic

The structure's own features drove the unwind. The shared underlying meant a move in one name moved every broker's book at once; the leverage turned the move into margin calls; the concentration meant the positions could not be sold without driving the prices down further; and the invisibility of the aggregate meant the lenders learned the true scale only as they competed to exit. Each feature amplified the others, and none provided a brake.

10.3 The Fundamental Structural Limitation

> Core Structural Diagnosis: Archegos operated a structure whose integrity depended on the aggregate never being seen. The exposure was fragmented across non-communicating lenders and shielded by a family-office disclosure posture (Condition 4, the root), so the scope grew unconstrained (Condition 3), the leverage was extended on partial information (Condition 2), and the declared identity diverged from the actual one (Condition 1). When one position broke, all of it activated at once with no buffer and no internal correction (Condition 5), and the only available correction, external liquidation, was disorderly precisely because the aggregate had been invisible. The structure could not be unwound in an orderly way from within or from without.

10.4 The Outcome the Structure Produced

As with any leveraged structure, whether such a configuration fails terminally depends in part on whether it has the *mass* to absorb what it produces: a capital base large enough, and unencumbered enough by borrowing, to take the loss without forced selling. Archegos had leverage, not mass; its margin was a fraction of its exposure, so the first shock it could not meet was terminal. The transparency root made the failure not only certain once the shock came but disorderly when it did.

11 Fragility Scorecard

11.1 Scoring Scale

Each condition is scored on the same fixed scale, defined in advance and applied uniformly across all QSIA engagements.

Score	Meaning
0	**Structurally absent.** The condition requirement is not met at any level.
1	**Materially deficient, no durability.** The enforcing mechanism is present but does not bind, or carries no margin, under operational load.
2	**Materially deficient, partial.** The mechanism binds partially, or carries thin margin, insufficient to sustain integrity under load.
3	**Minimally sufficient.** The condition requirement is met at a level adequate for current operation, though without significant margin.
4	**Strong.** The condition requirement is met with margin; the structure tolerates moderate perturbation without degradation on this condition.
5	**Robust.** The condition requirement is met comprehensively; the structure tolerates significant perturbation without degradation on this condition.

Table 2. QSIA Scoring Scale (fixed, domain-invariant).

11.2 Summary Scorecard

Diagnostic Condition	Score	Basis
Definitional Adequacy	1 / 5	Declared a private family office; operated as a systemically significant leveraged fund. Genuine legal identity, deficient correspondence to actual character.
Justification Grounding	1 / 5	Lenders extended leverage on per-broker models grounded on partial information; the aggregate was not part of any grounding. Downstream of the root.
Scope Discipline	1 / 5	Leverage near four to five times, concentrated beyond float, unexitable without moving prices. Primary amplifier.
Influence Transparency	0 / 5	No mechanism by which any exposed party could see the aggregate; fragmented across non-communicating brokers and shielded by the family-office posture. The root.
Verification Depth	1 / 5	No buffer and no internal correction; wholly external, disorderly liquidation.
Composite	**4 / 25**	

Table 3. QSIA Fragility Scorecard: Archegos Capital Management.

Note on interpretation. The five scores are independent measurements, each assessed against its own fixed criterion and its own evidence. They share a common cause, the transparency failure propagates into the others, but a shared cause is not a shared score: the composite records distinct deficiencies that a single root made likely, not one deficiency counted five times. Each condition would be scored on its own evidence even if the others held. Four conditions score 1 (the enforcing mechanism existed in form, per broker, but was materially deficient, and none reaches 2 because none of those mechanisms offered any durability under the stress that mattered); Influence Transparency scores 0 because the mechanism it requires, aggregate visibility to exposed parties, was not deficient but absent: the architecture provided no means by which the whole could be seen. The composite measures structural integrity, whether the structure's own mechanisms could sustain coherent operation, not the magnitude of the eventual loss.

12 Structural Requirements

Archegos no longer exists, so the question is not how to repair it but what any structure of this kind must satisfy to hold. The QSIA framework states these as the requirements the diagnosed failures define, organized by the tiered repair architecture (procedural, institutional, structural).

12.1 Transparency (Condition 4): the root requirement

- **Procedural:** the aggregate exposure of a financed entity assembled and reviewed, not just its exposure to each lender separately.
- **Institutional:** a mechanism by which lenders to a common counterparty can see that they share one, so concentration across counterparties is visible to each.
- **Structural:** disclosure keyed to market impact rather than to entity label, so that an entity of systemic scale cannot remain invisible by virtue of its form.

12.2 Scope (Condition 3)

- **Procedural:** position limits set against the aggregate and against the traded float, not against a single lender's book.
- **Institutional:** a binding liquidity-adjusted size limit, so no position exceeds what can be exited without a disorderly move.
- **Structural:** concentration capped relative to market depth across all financing relationships, not within each.

12.3 Grounding (Condition 2)

- **Procedural:** credit extended only against the borrower's aggregate exposure, not its bilateral exposure alone.
- **Institutional:** margin grounded on the concentration and liquidity of the whole book, with the aggregate a precondition of the extension.
- **Structural:** no extension of material leverage to a counterparty whose aggregate cannot be established.

12.4 Definition (Condition 1)

- **Procedural:** the entity's actual operating character, not only its legal form, recorded in any assessment of it.
- **Structural:** obligations attached to what an entity does (its scale and impact), not to what it is called.

12.5 Depth (Condition 5)

- **Procedural:** stress scenarios that include a shock to the most concentrated position.
- **Institutional:** a buffer sized to the adverse move, with an internal de-risking path that does not depend on selling into a market the position itself dominates.

- **Structural:** an orderly-unwind mechanism agreed in advance among the financing parties, so that correction is not a race conducted in the dark.

12.6 The Missing Layer

The deepest absence was any layer that could see the whole. Each lender's view was local and locally reasonable; no party held the aggregate, and the entity's form ensured none had to. The structurally significant requirement is a verification layer keyed to aggregate exposure and market impact, with standing to constrain before a shock, rather than a set of separately reasonable bilateral views that are collectively blind. That is the layer whose absence defined this case.

13 Conclusion

Archegos was, to each of its lenders, a manageable book. The structure that failed was visible from no single vantage: a single concentrated exposure, financed beyond its liquidity across several banks, that no party could see whole. The trigger was one position breaking. The cause was a configuration in which the aggregate was invisible by design.

The QSIA analysis locates the root in transparency. The exposure was fragmented across non-communicating prime brokers and shielded by a family-office disclosure posture, so the scope grew unconstrained, the leverage was extended on partial information, and the declared identity diverged from the actual one. When one position broke, all of it activated at once with no buffer and no internal correction, and the only available correction, external liquidation, was disorderly precisely because the aggregate had never been seen.

This case is the companion to the structural analysis of Long-Term Capital Management, and the pair is instructive because the roots differ. LTCM's root was grounding: it scaled irreversible commitments on parameters estimated from a calm regime and treated as established. Archegos's root was transparency: it built an exposure that no exposed party could see. The amplifier was the same in both, scope, leverage and concentration beyond exit capacity, but a shared amplifier with different roots is exactly the demonstration a single case cannot give. And the transparency failures themselves differ: LTCM's was emergent, opacity that arose from spreading positions and could in principle have been assembled; Archegos's was engineered, an architecture whose defining property was that the whole could not be assembled at all. That difference is why one scores transparency as deficient and the other as absent.

Under the QSIA structural classification, a composite of 4/25 with materially deficient integrity on four conditions and the fifth, transparency, structurally absent, places Archegos in the category of a structure that cannot sustain itself under a shock: one whose integrity depended on the aggregate never being seen, and which had no orderly path back, from within or from without, once it was. The trigger was one position. The cause was the configuration. That distinction is the structural diagnosis, and it is what the conventional instruments, which read each lender's local book rather than the structure's aggregate, were not built to see.

Primary Source Index

Sources are numbered in order of first appearance; the superscript number at each claim points to the corresponding entry below. The analysis draws on public-record sources only.

[1]Credit Suisse Group Special Committee of the Board of Directors, *Report on Archegos Capital Management*, prepared by Paul, Weiss, Rifkind, Wharton & Garrison LLP, July 29, 2021. This 165-page independent review is a primary public-record source for the Archegos exposure, the prime-broker structure, and the unwind, and is relied on throughout.

[2]The Credit Suisse review (Paul, Weiss, 2021) describes the use of total-return swaps under which the bank held the underlying positions, and a persistent failure of the bank's risk management to apprehend the size and concentration of the Archegos book. That each counterparty saw only its own exposure is a structural feature of the swap arrangement across multiple brokers.

[3]The total-return-swap structure and the family-office disclosure posture are described in the Credit Suisse review (Paul, Weiss, 2021) and in the U.S. Securities and Exchange Commission's 2022 enforcement action. The swaps left the reportable ownership with the banks, so Archegos's positions did not appear in the disclosures an outright holder would file.

[4]The sequence of the failed coordination call and the block liquidations is documented in the Credit Suisse review (Paul, Weiss, 2021) and in extensive contemporaneous public reporting.

[5]Credit Suisse Group Special Committee, *Report on Archegos Capital Management* (Paul, Weiss), July 29, 2021: the review found, among other things, a "persistent failure" to manage the risk of the Archegos book and a lack of escalation, while finding no fraudulent or illegal conduct by the bank itself.

[6]U.S. Department of Justice, Southern District of New York, "Founder and Head of Archegos Capital Management Bill Hwang Sentenced to 18 Years in Prison," November 20, 2024; U.S. Securities and Exchange Commission, "SEC Charges Archegos and its Founder with Massive Market Manipulation Scheme," April 27, 2022. The prosecution described two interrelated schemes: manipulative trading in the concentrated names, and false statements to the fund's counterparties.

Principal sources

- Credit Suisse Group Special Committee of the Board of Directors, *Report on Archegos Capital Management* (Paul, Weiss, Rifkind, Wharton & Garrison LLP), July 29, 2021. Independent review; primary source for the exposure, the prime-broker structure, the risk-management failures, and the unwind.
- U.S. Securities and Exchange Commission, "SEC Charges Archegos and its Founder with Massive Market Manipulation Scheme," April 27, 2022.
- U.S. Department of Justice, Southern District of New York, "Founder and Head of Archegos Capital Management Bill Hwang Sentenced to 18 Years in Prison," November 20, 2024.

Data confidence notes

Figures are drawn from public-record sources and vary modestly across them.

- **Exposure and leverage.** Peak value is reported as more than $36 billion against roughly $160 billion of gross exposure, a leverage on the order of four to five times; the growth from about $1.5 billion of capital and $10 billion of exposure a year earlier is widely reported. Precise figures vary by source and reporting date.
- **Bank losses.** Credit Suisse about $5.5 billion and Nomura about $2.9 billion are the largest reported; smaller losses at other banks bring the total above $10 billion. Bank-by-

bank figures vary by source.

- **Public findings.** The 2021 independent review found risk-management failures at the bank and no fraud by the bank itself; the 2024 fraud and market-manipulation conviction is of the fund's principal. The structural diagnosis rests on the documented configuration, not on the legal findings.

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No proprietary or internal information was used.

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