

GLOBAL FINANCIAL ENGINEERING, INC. | GLOBAL ACCOUNTANCY INSTITUTE, INC.

THE BROWN
SOVEREIGN ASSET
VALUATION METHOD
BSAVM

A Mathematical Doctrine for Internal Sovereign Value Tracing
Public Doctrine Edition — Version 1.0

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Publication Notice

The Brown Sovereign Asset Valuation Method (BSAVM) is published in this Public Doctrine Edition under the authorship of Dr. Glen Brown, President and Chief Executive Officer of Global Financial Engineering, Inc. and Global Accountancy Institute, Inc. The doctrine is released to the intellectual commons as a contribution to the valuation discipline, for the benefit of any institution or practitioner working with sovereign internally-deployed assets for which conventional valuation methodologies are structurally incomplete.

The method is authored; it is not externally validated, and it does not require external validation. Its authority derives from its own mathematical coherence, its philosophical foundation, and the institutional context from which it emerged. Users of the method who find it useful are welcome to apply it in their own sovereign contexts, subject to appropriate attribution and the intellectual integrity that sovereign doctrine requires.

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Scope of This Public Edition

This Public Doctrine Edition presents the complete mathematical and philosophical foundation of BSAVM. It is one of three companion documents forming the complete BSAVM public publication package. The companion documents are (1) the BSAVM Parameter Discipline Protocol, which specifies the operational discipline required for BSAVM applications to produce defensible valuations, and (2) BSAVM Foundational Examples, which present worked hypothetical illustrations across multiple sovereign asset classes demonstrating the method's generality.

Illustrative examples throughout this Edition use hypothetical parameter values. Any resemblance between hypothetical examples and specific real institutions is incidental; the examples are constructed to illuminate the method's operation rather than to describe any specific institutional application. Sovereign entities applying BSAVM to their actual assets retain complete control over the data they use and the conclusions they reach.

Abstract

The Brown Sovereign Asset Valuation Method (BSAVM) is a stand-alone valuation doctrine designed for sovereign internal assets — assets that are not held for sale, not structured for licensing, not developed to attract outside investors, and not measured for third-party approval. It is built for a class of asset whose economic force lies in what it can govern from within rather than in what it could realize through external transactions.

Conventional valuation methods each capture only fragments of the truth for this asset class. Cost methods trace historical build effort but understate integrated utility. Market methods require comparables that often do not meaningfully exist. Income methods assume monetization through fees, licensing, or sale proceeds that may not apply. Royalty methods depend on hypotheticals contradicting the actual operating philosophy. Excess-earnings methods are attribution-sensitive to the point of instability for integrated systems.

BSAVM resolves this by asking a different question: what level of sovereign economic authority has this asset already earned inside the institutional organism that it governs? The question is answered through five integrated dimensions — Sovereign Reconstruction Base, Institutional Integration, Operational Authority, Compounded Utility, and Transmission Continuity — combined multiplicatively to produce the sovereign valuation. In leveraged proprietary environments, BSAVM further introduces the concept of Leverage-Adjusted Governed Capital (LAGC), correctly distinguishing governed exposure from raw notional capacity.

The method is mathematically disciplined, philosophically coherent, and operationally sealable. It is published here as a contribution to the valuation discipline for the benefit of sovereign institutions whose assets conventional methods cannot adequately value.

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PART I
Foundations

1. The Sovereign Asset Problem

1.1 What Is a Sovereign Asset

A sovereign asset is an asset held by an institution that operates under its own authority, governs its own economic life, and does not require external validation to establish its operational or economic reality. Sovereign assets are distinct from market-oriented assets in four specific respects. They are not held for sale — the institution does not contemplate transferring them to external parties as part of its normal operation. They are not structured for licensing — the institution does not derive revenue from external parties using them. They are not developed to attract outside investors — their function is internal to the institution's own operational architecture rather than external to attract capital. And they are not measured by third-party approval — their economic authority is established by what they do within the institution that deploys them, not by market assessments of what they might be worth to others.

This definition is operational rather than legal. Many assets with ambiguous legal classification — internally developed software, proprietary institutional methodologies, sovereign operating frameworks, institutional knowledge systems — are functionally sovereign under the four-fold test above. Conversely, some assets with sovereign-sounding institutional descriptions may in fact be market-oriented if they are positioned for eventual sale, licensing, or investor-attraction purposes.

The functional test is specific: does the institution derive economic benefit from this asset through what it governs internally, or through what it realizes externally? Sovereign assets fall in the first category; market-oriented assets fall in the second. BSAVM is built for the first; conventional valuation methodology is built primarily for the second. The mismatch between asset class and valuation methodology is the origin of the problem BSAVM solves.

1.2 Why Sovereign Assets Are Mis-Valued by Conventional Methods

Valuation becomes distorted whenever the chosen method does not match the nature of the asset. For sovereign assets, this distortion is systematic rather than incidental because conventional methods were developed for a different class of asset and carry the assumptions of that development throughout their structure.

Cost-based methods begin from what it took to build the asset. This is informative but limited — for sovereign assets, the value realized through integrated deployment far exceeds the cost of initial construction. Cost methods understate integrated utility.

Market-based methods require comparable transactions. Sovereign assets, by their nature, do not trade in active markets — indeed, their sovereignty specifically consists in their non-market deployment. Market methods cannot produce meaningful comparables because the class of assets for which they are appropriate is the class that transacts, which sovereign assets do not.

Income-based methods require identifiable cash flows. For sovereign assets with 100% internal retention, the cash flows are diffused into the institution's overall economic life rather than tracking

to specific revenue lines. Income methods struggle to attribute flows to the sovereign asset versus the institutional organism it serves.

Relief-from-royalty methods assume hypothetical licensing. For assets that are specifically not licensed and not intended for licensing, the hypothetical is artificial, and the method produces outputs heavily sensitive to the specifics of the artificial licensing scenario constructed for the calculation.

Excess-earnings methods (such as MPEEM) attempt to isolate the asset's contribution to earnings after contributory charges. For integrated sovereign systems, the attribution between asset and organism becomes conceptually unstable — the asset and the organism have co-evolved to the point that separation produces arbitrary results.

None of these methods is wrong in its own domain. All of them are mismatched to sovereign assets. The solution is not to apply them with heroic adjustments; it is to develop a method built for the sovereign asset class specifically.

1.3 The Scope of the Problem

The sovereign asset problem is not confined to unusual cases. As institutional economic life has become increasingly dependent on internally developed intellectual assets, proprietary operating systems, methodological frameworks, and accumulated institutional knowledge, the proportion of institutional value that consists of sovereign assets has grown substantially. Modern institutions routinely hold substantial portions of their economic weight in assets that conventional valuation methodologies cannot adequately capture.

This under-measurement has systemic consequences. Institutions that cannot measure their sovereign assets cannot govern them effectively, cannot report them meaningfully, cannot plan around them strategically, and cannot preserve them across institutional transitions. The under-measurement is not merely an accounting inconvenience; it is an institutional governance failure that compounds across time.

BSAVM addresses this problem directly. It provides sovereign institutions with a valuation methodology that captures what their assets actually are rather than forcing those assets into conceptual categories where they do not fit.

A sovereign asset derives value from what it can govern within the institution that holds it. Any valuation method that cannot measure what the asset governs is incomplete. BSAVM is the method designed to measure specifically what conventional methods cannot.

2. Why Conventional Methods Are Structurally Incomplete

2.1 Method-by-Method Analysis

This section examines each of the five primary conventional valuation methods and identifies the specific structural features that make each incomplete for sovereign internal assets. The purpose is not to dismiss conventional methodology but to establish precisely what it captures, what it misses, and why a different methodology is required for the asset class BSAVM addresses.

2.1.1 The Cost Approach

The Cost Approach values an asset at the cost of reproducing it. Under the variant most applicable to intangible assets (reproduction cost new), the method estimates what a competent third party would spend to produce a functional equivalent of the asset.

For sovereign assets, the Cost Approach captures one real dimension of value: the asset is worth at least what it costs to reproduce, because any rational institution seeking that asset's functionality would pay up to the reproduction cost rather than build it. This is a defensible floor.

The method is incomplete because reproduction cost captures only the substance of the asset at the moment of reproduction. It does not capture institutional integration — the ways the asset is embedded into governance, operational process, and institutional architecture after construction. It does not capture operational authority — the domains the asset actually governs in use. It does not capture compounded utility — the forward stream of institutional benefit the asset generates. And it does not capture transmission continuity — the asset's capacity to survive institutional transitions.

For an asset whose economic significance arises predominantly through these post-construction dimensions, cost alone provides only a partial reading. It serves as a floor in BSAVM's architecture but cannot serve as the complete measure.

2.1.2 The Market Approach

The Market Approach values an asset by reference to prices observed in comparable transactions involving similar assets. The method's analytical strength is that it anchors valuation in empirically observable market behavior rather than in methodological assumption.

For sovereign assets, the Market Approach encounters a foundational problem: by definition, sovereign assets do not transact, and the class of assets that does transact is a different class that does not share the features that make sovereign assets distinctive. Comparable transactions in the strict sense — transactions involving genuinely similar sovereign internally-deployed assets — may not exist.

Analysts applying market methods to sovereign assets commonly resort to loose comparables drawn from adjacent but structurally different asset classes. This produces results heavily

dependent on which adjacent class is selected and how adjustments are applied. The method's apparent empirical grounding becomes illusory when the empirical basis is drawn from a structurally different asset class.

Sovereign doctrine therefore treats market comparison as a check rather than as a primary method — informative where relevant comparables exist, non-determinative where they do not.

2.1.3 The Income Approach

The Income Approach values an asset as the present value of the future economic benefits it produces. In its applications to operating businesses and external-revenue-generating IP, the method is theoretically elegant and empirically tractable when cash flows are identifiable.

For sovereign assets with 100% internal retention, the method encounters a specific challenge. The economic benefits are real but diffused into the institution's overall operational life rather than tracking to specific revenue lines. Identifying what portion of the institutional economic output is attributable to a specific sovereign asset becomes an attribution exercise of substantial methodological difficulty.

Income method applications to sovereign assets typically either (a) construct hypothetical cash flows that the asset would produce if it were externally monetized (which contradicts the asset's actual operating model) or (b) estimate imputed cash flows from internal utility (which faces severe attribution challenges). Both approaches produce outputs sensitive to the specifics of the hypothetical construction, making the valuation results substantially less reliable than the method's theoretical elegance would suggest.

2.1.4 Relief-from-Royalty

The Relief-from-Royalty method values IP as the capitalized value of royalties the institution would otherwise pay if it licensed the IP from a third party. The method's strength lies in applying observable royalty rate data from comparable licensing transactions.

For sovereign IP specifically designed not to be licensed, the method's foundational hypothetical contradicts the asset's actual operating reality. Applying it produces a value that reflects what the asset would be worth if it were positioned differently — positioned for licensing rather than for sovereign internal deployment. That counterfactual value is not the sovereign asset's actual value; it is the value of a different hypothetical asset constructed by the method's framing.

Additionally, the method's revenue base issue compounds with the Income Approach difficulty: the royalty is applied to a revenue base that for sovereign assets is imputed rather than actual. The compounded hypotheticals make the method's output sensitive to the combined uncertainty of both hypotheticals.

2.1.5 The Multi-Period Excess Earnings Method (MPEEM)

The MPEEM values an asset as the present value of excess earnings attributable to it after fair contributory charges for all other contributing assets (capital, workforce, tangible support, other IP). The method is particularly useful for identifying the specific asset's contribution in situations where multiple assets contribute to a single earnings stream.

For sovereign assets integrated into an institutional organism, the attribution challenge becomes severe. The asset and the organism have co-evolved to the point that separating the asset's contribution from the organism's contribution is conceptually unstable. Different attribution assumptions produce widely varying results, and no single attribution set has claim to particular objectivity.

The method's attribution instability for integrated sovereign systems makes it useful as a check rather than as a primary valuation. Outputs provide directional information about whether the asset's contribution is likely substantial or modest, but specific dollar conclusions are heavily assumption-dependent.

2.2 The Combined Inadequacy

Some analysts, recognizing the limitations of each individual method, propose applying multiple methods and reconciling the results. This is standard practice in mainstream valuation and produces reasonable results for mainstream asset classes.

For sovereign internal assets, however, the combined-method approach does not resolve the fundamental problem. Averaging five incomplete methods does not produce a complete one; it produces an average of incomplete measurements. The structural features that make each individual method inappropriate for sovereign assets remain in the average, now shared among multiple methodologies in ways that can make the inadequacy less visible rather than more.

What is required is a method appropriate to the asset class, applied with discipline, and producing results that reflect the asset's actual economic reality rather than the reality of a different asset class to which conventional methods are suited. That is what BSAVM provides.

3. The Sovereign Valuation Principle

3.1 The Fundamental Principle

BSAVM rests on a single fundamental principle from which its entire architecture derives:

A sovereign internal asset derives value from what it can govern, not merely from what it cost to build, what someone else might pay for it, or what fee it could hypothetically charge.

This principle is both descriptive and prescriptive. It describes the actual nature of sovereign asset value — the thing that makes sovereign assets economically significant is their governance of institutional economic life. It prescribes the valuation approach — if governance is the value source, then valuation methodology must measure governance rather than substitute other measures for it.

Everything in BSAVM's mathematical architecture is a direct expression of this principle. The Sovereign Reconstruction Base captures the substance that is available for governance. The Institutional Integration Multiplier captures the depth at which the substance has been integrated into institutional operation. The Operational Authority Multiplier captures the domains that the substance actually governs. The Compounded Utility Multiplier captures the forward stream of governance utility. The Transmission Continuity Multiplier captures the governance's capacity to endure beyond current tacit dependencies.

These five dimensions together describe what governance consists of for sovereign assets, and their multiplicative combination captures how governance aggregates to produce sovereign value. The method is not arbitrary mathematics; it is the specific mathematical expression of the fundamental principle.

3.2 The Four Implications

The fundamental principle has four immediate implications that shape the entire method:

PRINCIPLE 1 Valuation Must Begin With Reality

The method must be anchored in what the asset actually is, not in hypothetical reconstructions

Sovereign valuation begins with the actual substance of the sovereign asset as it exists — its documented content, its operational state, its institutional embedding at the valuation date. Hypothetical counterfactuals (what the asset would be if it were licensed, what it would produce if sold) misrepresent the sovereign reality. BSAVM's Reconstruction Base captures real substance; subsequent multipliers capture real operational dimensions.

PRINCIPLE 2 Valuation Must Recognize Integration*Integrated assets are not the sum of their separable components*

A sovereign asset operating as a single integrated system has value arising from the integration itself, distinct from the value of its components. Separating the components and valuing them individually systematically understates the integrated whole. BSAVM's Institutional Integration Multiplier captures the specific uplift that arises from genuine integration — and its logarithmic form prevents integration from becoming an unchecked valuation inflation mechanism.

PRINCIPLE 3 Valuation Must Recognize Authority*Assets that govern operational domains produce more sovereign value than assets that merely exist*

Two sovereign assets with identical substance may differ materially in economic significance depending on what they govern in institutional operation. An asset governing capital deployment, risk management, and strategic direction produces more sovereign value than an asset that merely documents theory without operational authority. BSAVM's Operational Authority Multiplier measures this difference through domain-by-domain assessment of realized authority.

PRINCIPLE 4 Valuation Must Recognize Continuity*Assets that can survive institutional transitions have deeper forward value than those that cannot*

A sovereign asset whose operation depends entirely on a single operator has limited forward value because its life is bounded by that operator's tenure. An asset that has been codified, documented, transmitted to additional operators, and embedded in institutional architecture has deeper forward life. BSAVM's Transmission Continuity Multiplier captures this dimension through explicit assessment of modular codification, procedural transfer, human formation, and role-independence.

3.3 The Integration of the Implications

The four implications are not independent — they are aspects of a single sovereign reality. A sovereign asset is valuable because it exists as real substance (Implication 1) that has been integrated into institutional operation (Implication 2) to exercise authority over operational domains (Implication 3) in ways that can endure beyond current dependencies (Implication 4). The four implications together constitute what sovereign value is.

BSAVM's multiplicative architecture — $V = B \times I \times A \times C \times T$ — directly expresses this integration. Each factor corresponds to one of the implications (with the Compounded Utility Multiplier providing the forward-looking expression that the implications require), and the product expresses their integrated operation. A weakness in any single dimension cascades into the total value because sovereign value genuinely requires all four implications operating together; strength in any single dimension does not rescue weakness in another because sovereign value is not dimension-substitutable.

PART II
**The Sovereign Capital
Hierarchy**

4. The Four Sovereign Capital Layers

Before the full BSAVM architecture is presented, it is necessary to establish the sovereign capital hierarchy on which the method's utility dimension rests. This hierarchy is particularly important for sovereign assets that operate through leveraged internal deployment — assets whose economic significance lies in converting modest sovereign equity into large-scale governed notional exposure through managed leverage architecture. The four capital layers, in ascending order of significance for valuation purposes, are as follows.

4.1 Sovereign Equity Capital (SEC)

$$\text{SEC} = \text{E}$$

Sovereign Equity Capital is the real owned capital of the sovereign institution — the fundamental economic substance that the institution holds on its own authority. For any sovereign institution, SEC is the foundation from which all sovereign economic activity proceeds.

SEC is real and non-hypothetical. It reflects actual institutional ownership at the valuation date. It does not include capital that has been committed by external parties, capital that is contemplated for future raising, or capital that is hypothetically available under various scenarios. SEC is what the institution actually holds.

While SEC is fundamental, it is not the complete expression of the sovereign institution's governed economic power. An institution with modest SEC but substantial governance architecture may govern economic authority materially in excess of its SEC. Conversely, an institution with substantial SEC but weak governance architecture may exercise less economic authority than its raw capital suggests. SEC is the starting point for sovereign capital analysis, not the conclusion.

4.2 Gross Notional Capacity (GNC)

$$\text{GNC} = \text{E} \times \text{L}$$

Gross Notional Capacity is the raw notional exposure that the institution can control through leverage amplification of its SEC. It measures what capital the institution can control in gross form, before considerations of governance discipline or realized economic command.

GNC is a capacity measure. It describes what exposure the institution can theoretically command if it applied its full leverage to its full SEC without restraint. For institutions operating with meaningful leverage, GNC can be substantial multiples of SEC — sometimes many thousands of multiples, depending on the leverage architecture available to the institution.

GNC alone is not a valuation basis. Raw notional exposure without governance discipline is not sovereign value — it is merely exposure. Exposure that is not governed is precisely what produces institutional failure: leverage amplifies what is commanded, and what is commanded badly is

amplified badly. For valuation purposes, GNC is descriptive of potential rather than determinative of value.

The distinction between GNC and actual sovereign value is the specific distinction that conventional notional-based valuation fails to make. Naive applications that treat notional exposure as equivalent to managed capital systematically overstate sovereign value because they conflate capacity with realized authority. BSAVM's LAGC concept, presented next, makes the distinction rigorous.

4.3 Leverage-Adjusted Governed Capital (LAGC)

$$\text{LAGC} = E \times L \times G$$

Leverage-Adjusted Governed Capital is the correct sovereign capital basis for valuation purposes. It measures the governed economic authority that the institution actually exercises — the portion of GNC that is converted into disciplined governance rather than remaining as undisciplined exposure.

The coefficient G — the Governance Realization Coefficient — is bounded in the closed interval $[0, 1]$. G represents the fraction of theoretical governance capacity that is actually realized in operation. $G = 0$ indicates pure exposure without governance (equivalent to gambling); $G = 1$ indicates theoretical maximum governance realization (unlikely in practice for any real institution); realistic G values for well-governed institutions fall in the 0.70–0.90 range, with specific values anchored to objective evidence per the Parameter Discipline Protocol.

LAGC is the sovereign capital basis because it captures specifically what the institution governs, not merely what it theoretically could govern. For an institution with $E = 100,000$, $L = 1000$, and $G = 0.80$, $\text{LAGC} = \$80,000,000$. This is the sovereign economic authority the institution actually exercises — materially less than the \$100,000,000 GNC, materially more than the \$100,000 SEC.

The introduction of G is the decisive analytical move in BSAVM's sovereign capital hierarchy. Without G , leverage becomes a multiplier that can produce arbitrarily large notional values from small equity bases — a result that fails because it treats undisciplined leverage as if it were governance. With G , leverage is translated through governance discipline into sovereign economic authority, producing values that genuinely reflect what the institution governs.

4.4 Sovereign Notional Expansion Rate (SNER)

$$\text{SNER} = \text{LAGC}_1 / \text{LAGC}_0$$

Sovereign Notional Expansion Rate measures how the institution's governed notional command evolves through time. It is the ratio of current LAGC to initial LAGC across a specified institutional period.

SNER is more than a growth ratio. It captures specifically how effectively the institution expands its governed economic command across its operational history. An institution with SNER = 7 over a specific period has increased its governed notional command sevenfold during that period — a substantive indicator of the sovereign asset's operational effectiveness.

For valuation applications, SNER provides a forward-indicative measure. An institution demonstrating high SNER across a documented historical period provides empirical evidence for parameter selections (particularly η , ρ , and δ in the Compounded Utility Multiplier) that would be harder to defend for institutions without such demonstrated expansion history.

SNER is also a doctrinal concept in sovereign valuation — it is a direct measure of the specific thing that makes leveraged sovereign proprietary operation valuable: not capital accumulation alone, but expansion of governed economic authority. An institution that accumulates capital without expanding governed authority is growing but not developing sovereignly; an institution that expands governed authority even without raw capital growth is developing sovereignly. SNER distinguishes the two.

5. The Governance Realization Coefficient (G)

The Governance Realization Coefficient is the most analytically consequential single parameter in BSAVM. Because G determines LAGC, and LAGC drives the Compounded Utility Multiplier, G propagates through to the final valuation with substantial leverage. This section specifies what G represents, how it should be understood, and what discipline its application requires.

5.1 What G Measures

G is bounded in $[0, 1]$ and represents the fraction of theoretical governance capacity that the sovereign institution actually realizes in its operational practice. G is a measure of governance discipline applied to available leverage — not a measure of profitability, not a measure of capital efficiency, not a measure of operational success in the conventional sense, but specifically a measure of how completely governance architecture translates theoretical leverage authority into actually-governed economic authority.

$G = 0$ would indicate complete failure of governance — leverage is available but produces pure undisciplined exposure. This value does not occur in practice for any functioning institution, because the existence of institutional functioning implies some level of governance.

$G = 1$ would indicate perfect governance realization — every element of theoretical leverage capacity is translated into actually-governed authority through institutional discipline. This value does not occur in practice because no real institution operates at theoretical perfect governance; every institution has some gap between theoretical capacity and actual discipline.

Practical G values fall in the 0.60–0.95 range. Values below 0.60 indicate substantial governance weakness that should prompt institutional review; values above 0.95 require exceptional evidence of sustained governance excellence and are difficult to defend under parameter discipline; most well-governed institutions operate in the 0.75–0.90 range with specific values determined by objective evidence.

5.2 Evidence for G

G must be anchored in objective evidence rather than asserted. The specific evidence appropriate to G assessment varies with the institution's operational domain, but includes categories such as the following.

Drawdown discipline — the institution's capacity to maintain exposure within design envelope under adverse conditions. An institution whose maximum drawdown over a documented operational period remains within pre-established design limits demonstrates governance realization; an institution that exceeds design limits under stress demonstrates governance gaps.

Stop and risk protocol adherence — the institution's capacity to execute its risk management protocols under pressure. Protocols that are consistently executed demonstrate governance

realization; protocols that are overridden or disregarded under pressure demonstrate governance weakness.

Recovery characteristics — the institution's capacity to restore operation after adverse periods. Clean recovery to pre-adverse-period operation demonstrates governance resilience; failure to recover, or prolonged impaired operation, demonstrates governance fragility.

External governance validation — validations by regulated counterparties (professional status assessments, regulatory compliance reviews, institutional credit evaluations) that reflect external assessments of governance quality. These are not substitutes for internal assessment, but they provide external-validation inputs that can inform G calibration.

Absence of governance breaches — documented institutional periods during which governance architecture has operated without breaches requiring manual override or discretionary exception. Extended clean operation is evidence of governance realization.

5.3 The Doctrinal Significance of G

G is not merely a mathematical parameter; it is the specific doctrinal statement that sovereign value arises from governance rather than from raw exposure. A sovereign valuation methodology that does not contain a parameter performing G's specific function is making the implicit claim that exposure alone creates value — a claim that sovereign doctrine specifically rejects.

This makes G's correct application a doctrinal requirement, not merely a technical one. G must reflect genuine institutional governance as evidenced, not ambitions or assertions. An institution selecting G values that exceed what its evidence supports is not producing a BSAVM valuation; it is producing something else that misrepresents sovereign doctrine while appearing to apply it.

Without G, leverage is exposure. With G, leverage becomes governed economic authority. G is the decisive parameter that distinguishes sovereign valuation from naive leverage-multiplication.

6. The Notional Exposure Governance Engine Concept

6.1 The Concept

The Notional Exposure Governance Engine (NEGE) is the doctrinal identification that BSAVM applies to sovereign assets operating through leveraged proprietary internal deployment. An NEGE is a sovereign institutional system whose economic significance lies in its capacity to convert modest sovereign equity into large-scale governed notional exposure through disciplined managed leverage architecture, while retaining 100% of resulting economic output internally.

The NEGE identification is not rhetorical — it specifies a specific institutional architecture with specific valuation implications. An NEGE is distinct from a conventional trading business (which gathers external capital and extracts fees), distinct from a licensed trading technology (which produces revenue through external licensing), and distinct from a proprietary trading team (which may or may not have formalized doctrinal architecture). An NEGE is specifically a sovereign architecture for governing leveraged notional exposure.

For assets correctly identified as NEGEs, BSAVM's methodology applies in its complete form with the sovereign capital hierarchy, the LAGC concept, and the Compounded Utility Multiplier calculated from forward LAGC streams. For assets that are not NEGEs but are sovereign in character through other architectures, BSAVM's general architecture applies but the sovereign capital hierarchy may require adaptation to the specific asset class.

6.2 Diagnostic Criteria for NEGE Identification

A sovereign asset qualifies as an NEGE if it exhibits the following diagnostic features:

Leverage architecture — the institution operates with leverage above modest retail ratios, typically in professional or institutional tiers (ranging from 20:1 through many thousands:1 depending on asset class and regulatory jurisdiction).

Disciplined exposure governance — the institution has formal doctrinal architecture for governing exposure (not merely for taking exposure), including explicit design envelopes, stop protocols, and institutional discipline for their execution.

Internal retention — the institution retains 100% of economic output internally rather than distributing output through external fee structures or investor distributions.

Integrated operating system — the leverage, governance, and retention features operate as a single integrated system rather than as separable components.

Sovereign institutional context — the institution operates as a sovereign entity under its own authority rather than as a subsidiary operation of an external-facing business.

An asset exhibiting all five features is an NEGE and is valued through BSAVM's complete architecture including the sovereign capital hierarchy. An asset exhibiting four of five features may be a partial NEGE requiring methodological adaptation. An asset exhibiting three or fewer

features is likely not an NEGE and may be valued through BSAVM's general architecture without the specific NEGE-oriented features.

6.3 The NEGE Valuation Implication

For an NEGE, the valuation question is not 'what would the trading system be worth as a product?' but 'what economic authority does this governance engine exercise over leveraged notional exposure, and what forward sovereign utility does that authority generate?' The question has a fundamentally different structure from conventional valuation questions, and BSAVM provides the methodology specifically appropriate to answering it.

The NEGE identification also establishes an important boundary: the valuation's magnitude is driven significantly by the governance engine's ability to convert exposure into retained utility, not by the exposure alone. An NEGE governing \$X in notional exposure with $G = 0.85$ produces substantially different sovereign value than an NEGE governing the same exposure with $G = 0.60$, even though the raw exposure figures are identical. The governance difference is the value difference, and BSAVM's architecture captures this correctly.

PART III
**The Five-Dimensional
Architecture**

7. The Multiplicative Structure

7.1 The Master Equation

$$V_{\text{BSAVM}} = B \times I \times A \times C \times T$$

The Brown Sovereign Asset Valuation Method expresses the sovereign value of an asset as the product of five dimensional multipliers, each measuring a specific aspect of sovereign value: the Sovereign Reconstruction Base (B), the Institutional Integration Multiplier (I), the Operational Authority Multiplier (A), the Compounded Utility Multiplier (C), and the Transmission Continuity Multiplier (T).

The Base term B is stated in currency units (dollars, euros, or any monetary unit appropriate to the institutional context) and represents the reconstruction cost of the sovereign asset in its current operational form. The four multipliers I, A, C, and T are dimensionless quantities that scale the base to capture the dimensions of sovereign value beyond reconstruction cost alone.

The master equation's multiplicative structure is deliberate. Each dimension captures a distinct aspect of sovereign value, and the dimensions interact multiplicatively rather than additively because sovereign value is genuinely the product of its dimensions rather than their sum. An asset with substantial reconstruction substance but zero integration produces zero sovereign value under BSAVM — which is correct, because unintegrated substance is merely inert material rather than sovereign asset. An asset with substantial reconstruction substance, deep integration, but zero operational authority similarly produces zero sovereign value — which is also correct, because integrated substance without authority is merely embedded without governing. The multiplicative structure ensures that all dimensions must be present for sovereign value to exist at meaningful magnitudes.

7.2 Why Multiplicative Rather Than Additive

A natural alternative to the multiplicative structure would be an additive structure: $V = B + I + A + C + T$ or some weighted addition. BSAVM rejects this alternative on specific doctrinal grounds.

Additive structures assume dimensional substitutability — that strength in one dimension can compensate for weakness in another. For sovereign assets this assumption is false. An asset with exceptional integration but no operational authority cannot be made valuable by the integration strength alone; it is valueless because it lacks the authority dimension. Conversely, an asset with exceptional authority but no reconstruction substance cannot be made valuable by the authority alone; it is valueless because there is no substance over which the authority operates.

The multiplicative structure correctly captures this non-substitutability. If any dimension approaches zero, the total value approaches zero — reflecting the sovereign reality that all dimensions are required for sovereign value to exist. If all dimensions are strong, the product is strong — reflecting the sovereign reality that integrated strength across dimensions produces integrated sovereign value.

The multiplicative structure is also mathematically well-behaved for the specific parameter ranges BSAVM employs. Each multiplier is structured (via logarithmic, square-root, or linear dampening as specified in later sections) to remain in stable ranges that produce bounded final values. A naive multiplicative structure without dampening could produce explosive valuations; BSAVM's specific dampening architectures prevent this while preserving the multiplicative doctrine.

7.3 The Role of Dampening

Each multiplier in BSAVM (I, A, C, T) is constructed with specific dampening structure to ensure that individual dimensions cannot drive arbitrarily large final valuations regardless of input magnitudes. The dampening choices are:

- I uses logarithmic dampening ($1 + \ln(1 + s)$) — integration has diminishing marginal valuation impact beyond basic integration thresholds
- A uses square-root dampening ($1 + \sqrt{(\Sigma \alpha_k q_k^2)}$) — authority realized deeply in a few domains produces similar valuation impact to authority realized broadly but shallowly across many domains; extreme concentration in single domains does not produce explosive valuation
- C uses nested logarithmic dampening ($1 + \ln(1+U_LAGC)/\ln(1+U_ref)$) — forward utility streams have diminishing marginal valuation impact, preventing leverage amplification from producing unbounded valuation
- T uses linear dampening ($1 + \beta\tau$) — continuity is treated as prudential modifier rather than primary value driver; continuity cannot produce more than a modest multiplier on assets that lack continuity rather than drive valuation explosion

These dampening choices are not arbitrary — each reflects specific doctrinal judgments about how the corresponding dimension contributes to sovereign value. Together they produce a method that scales appropriately with institutional substance while preventing the valuation inflation that naive multiplicative structures would produce.

8. Dimension B — Sovereign Reconstruction Base

DIMENSION B Sovereign Reconstruction Base

The substance that the sovereign institution has built, measured in reconstructible reality

B anchors BSAVM in reality. Every sovereign valuation must begin with the substance that actually exists — what it took or would take to construct the sovereign asset in its current operational form. Without a base term, valuation becomes metaphysical; with it, valuation is anchored in documentable institutional reality.

8.1 The Three Components

$$B = DC + RC + IC$$

The Sovereign Reconstruction Base is decomposed into three components reflecting the three distinct categories of reconstructible cost: Direct Development Cost (DC), Reconstruction Cost of doctrinal and technical material (RC), and Integration Cost required to achieve live deployment and institutional embedding (IC).

This three-component decomposition is more rigorous than a single 'replacement cost' figure because it recognizes that sovereign assets have substance in three distinct forms — operational substance (from direct development), doctrinal substance (from codification of methods and specifications), and institutional substance (from integration into operational life). Each form of substance has its own cost structure and its own reconstruction discipline.

8.2 Direct Development Cost (DC)

DC captures the fully-loaded professional cost of originally developing the sovereign asset. It is measured by the cumulative professional effort that went into development, valued at fully-loaded professional rates appropriate to the seniority and specialty of the contributors.

Methodology: Time-logged institutional history of development effort (typically documented through institutional records, project logs, or equivalent sources) multiplied by fully-loaded professional rates. Fully-loaded rates include base compensation, benefits, infrastructure, overhead, and capital employed on behalf of the contributor. For senior professional contributors in quantitative, technical, or doctrinal roles, fully-loaded rates typically range from approximately \$300K to \$600K per annum depending on seniority, specialty, and institutional location.

Interpretation: DC represents the real resource investment that produced the sovereign asset's current substance. It is not a hypothetical — it is the documentable cost of the institutional work that created the substance being valued. DC may be larger or smaller than the institution's recorded accounting expense depending on whether accounting reflected fully-loaded costs at the time of development.

8.3 Reconstruction Cost (RC)

RC captures the cost of reproducing the sovereign asset's current doctrinal and technical corpus at professional rates. For sovereign assets with substantial documented doctrinal architecture — formal methodologies, technical specifications, operational protocols, institutional frameworks — RC can be a major component of B, often larger than DC.

Methodology: Inventory of the current doctrinal and technical corpus, with author-rate pricing for each component. Senior doctrinal author rates typically range from \$200K to \$500K per annum; senior technical specification author rates typically range from \$300K to \$600K per annum. Reconstruction cost equals the summed product of corpus components and their respective author-year requirements at appropriate rates.

Interpretation: RC represents what a capable third party would spend to reproduce the doctrinal and technical substance that currently exists, starting from a blank sheet and building to the same state of codified documentation. RC updates as the institution's corpus grows — each additional doctrinal document, technical specification, or institutional framework adds to the current RC basis.

8.4 Integration Cost (IC)

IC captures the cost of achieving live deployment, institutional embedding, and operational scaffolding. For sovereign assets whose significance arises from integrated operation (rather than from isolated substance), IC may be the largest component of B, reflecting the substantial institutional work required to convert built material into operative sovereign architecture.

Methodology: Identification of the integration activities required for the asset's current operational state, including deployment infrastructure, institutional process embedding, governance architecture integration, regulatory and counterparty relationship establishment, and operational scaffolding. Each integration activity is valued at appropriate institutional cost.

Interpretation: IC represents the reconstruction cost of the 'last mile' — the institutional work that converts built doctrine and technology into live operative sovereign architecture. This is the work most often underestimated in cost-based valuations because it consists of institutional activity rather than discrete deliverables, but for sovereign assets it is typically the largest cost category.

8.5 Why B Alone Is Insufficient

B captures what the sovereign asset has cost to create, but not what the asset is worth in operation. For sovereign assets whose economic significance lies in governance authority, integration depth, utility generation, and transmission continuity, B is only the starting point. The

four multipliers (I, A, C, T) capture the dimensions beyond B that together constitute sovereign value.

In most BSAVM applications, the final V_{BSAVM} is 3× to 8× the value of B alone, with the specific multiple driven by the multiplier values and the specific institutional situation. This ratio is the empirical measure of how much sovereign value exceeds reconstruction substance alone — and the methodological purpose of the four multipliers is to make that excess quantifiable and defensible.

9. Dimension I — Institutional Integration Multiplier

DIMENSION I Institutional Integration Multiplier

The depth at which the sovereign asset has been integrated into institutional operation

An asset that is built but not integrated is weaker than an asset that is built, documented, deployed, trained into human carriers, and embedded in governance. I captures this specific integration depth as a multiplier that scales the Reconstruction Base according to how completely the asset has been institutionally embedded.

9.1 Structure

$$I = 1 + \ln(1 + s)$$

The Institutional Integration Multiplier is constructed as one plus the natural logarithm of one plus the integration score s . The logarithmic structure produces diminishing marginal uplift — the move from shallow integration to meaningful integration is valuable; the move from already-deep integration to even deeper integration is valuable but incrementally less explosive.

For $s = 0$ (no integration), $I = 1 + \ln(1) = 1$, producing no multiplier effect. For $s = 1$ (maximum integration per scale), $I = 1 + \ln(2) \approx 1.693$, producing approximately 1.69× uplift. For intermediate values $s = 0.5$, $I = 1 + \ln(1.5) \approx 1.405$. The range of I across plausible integration scores is approximately 1.0 to 1.7, reflecting the bounded nature of integration uplift under sovereign doctrine.

9.2 The Integration Score

$$s = w_1d + w_2g + w_3o + w_4f + w_5x$$

The integration score s is a weighted combination of five component scores, each bounded in $[0, 1]$:

- d — doctrinal codification: the depth and formality of the asset's doctrinal documentation
- g — governance embedding: the integration of the asset with institutional governance architecture
- o — operational deployment: the extent of the asset's live deployment in institutional operation
- f — formation embedding: the integration of the asset with institutional formation and transmission infrastructure
- x — cross-entity integration: the integration of the asset across institutional boundaries (for multi-entity institutions)

The weights w_1 through w_5 sum to 1. Under default sealed protocol, equal weighting (each $w = 0.20$) is used; weighted variations require evidence-based justification under the Parameter Discipline Protocol.

9.3 Component Interpretations

9.3.1 Doctrinal Codification (d)

Measures the extent to which the sovereign asset is documented in formal institutional doctrine. Scores: $d \approx 0.2$ for informal tacit understanding only; $d \approx 0.5$ for partial documentation; $d \approx 0.8$ for comprehensive formal doctrine; $d \approx 0.95$ for exhaustive formal doctrine covering all dimensions of the asset's operation.

9.3.2 Governance Embedding (g)

Measures the extent to which the sovereign asset is integrated with institutional governance architecture — explicit policies, decision rules, authority hierarchies, and governance protocols governing the asset's operation. Scores: $g \approx 0.2$ for minimal governance integration (asset operates at operator discretion only); $g \approx 0.5$ for partial governance protocols; $g \approx 0.8$ for comprehensive governance architecture; $g \approx 0.95$ for fully integrated governance with formal boards, amendment protocols, and documented authority structures.

9.3.3 Operational Deployment (o)

Measures the extent of the asset's live deployment in institutional operation. Scores: $o = 0$ for pre-deployment (documented but not yet operating); $o \approx 0.3$ for limited pilot deployment; $o \approx 0.7$ for substantial deployment with documented operational period; $o \approx 0.95$ for comprehensive continuous deployment over meaningful operational periods with documented discipline.

9.3.4 Formation Embedding (f)

Measures the integration of the asset with institutional formation and transmission infrastructure — training programs, carrier-formation curricula, or equivalent institutional mechanisms for propagating the asset to human operators beyond originators. Scores: $f \approx 0.2$ for no formation infrastructure (asset depends on tacit understanding by originators); $f \approx 0.5$ for partial formation infrastructure; $f \approx 0.8$ for comprehensive formation infrastructure though not yet producing formed carriers; $f \approx 0.95$ for formation infrastructure with demonstrated formed carrier output.

9.3.5 Cross-Entity Integration (x)

For institutions operating across multiple entities or institutional boundaries, x measures the integration of the asset across those boundaries. For single-entity institutions, x may not apply and

is either omitted (with other weights rebalanced) or set to 1.0 by convention (making it neutral in the weighted sum). For multi-entity institutions, $x \approx 0.2$ indicates asset operates in single entity with no cross-entity integration; $x \approx 0.8$ indicates substantive integration across entities; $x \approx 0.95$ indicates comprehensive integration with formal cross-entity architecture.

10. Dimension A — Operational Authority Multiplier

DIMENSION A Operational Authority Multiplier

The depth of authority the sovereign asset exercises across the operational domains it governs

Ownership of substance is not enough. The true question is what the asset governs operationally. A captures authority across specific operational domains with a square-root structure that rewards depth of authority in important domains over superficial breadth across many.

10.1 Structure

$$A = 1 + \sqrt{(\sum \alpha_k q_k^2)}$$

The Operational Authority Multiplier is constructed as one plus the square root of a weighted sum of squared authority scores. The quadratic form rewards depth — an asset with authority 0.9 in a single domain contributes more than the same asset distributed as authority 0.45 across two domains. The square root rescales the result into a stable multiplier form, preventing uncontrolled inflation while preserving the value of depth.

For a single domain with $q = 1$ (maximum authority) and weight $\alpha = 1$, $A = 1 + \sqrt{1} = 2$. For a single domain with $q = 0.5$, $A = 1 + \sqrt{0.25} = 1.5$. For six equally-weighted domains each with $q = 0.8$, $A = 1 + \sqrt{0.64} = 1.8$. The range of A across plausible authority profiles is approximately 1.0 to 2.0, reflecting the bounded nature of authority uplift under sovereign doctrine.

10.2 Authority Domains

BSAVM does not prescribe a fixed set of authority domains because the domains appropriate to a specific sovereign asset depend on what that asset actually governs. Instead, BSAVM provides a framework for domain identification and scoring. Typical domains for various sovereign asset classes include:

For NEGE-class sovereign assets (leveraged proprietary operating systems):

- Capital deployment — authority over how capital is placed in markets
- Risk governance — authority over risk boundaries and stop architecture
- Execution control — authority over order execution and position management
- Position sizing — authority over the magnitude of specific deployments
- Doctrinal guidance — authority over framework evolution and institutional integrity

- Continuity architecture — authority over institutional transmission

For other sovereign asset classes, appropriate domains might include:

- For sovereign proprietary software: algorithmic authority, data architecture authority, security authority, integration authority, evolution authority
- For sovereign institutional methodologies: methodological authority, application authority, refinement authority, transmission authority
- For sovereign knowledge systems: domain authority, verification authority, update authority, application authority

The specific domain set for any BSAVM application is institutionally determined based on what the asset actually governs, not imposed by the method. The discipline is that the domains identified must genuinely correspond to authority the asset exercises, evidenced rather than asserted.

10.3 Authority Scoring

Each domain's authority score q_k is bounded in $[0, 1]$ and measures the realized authority of the asset in that specific domain. Scoring is evidence-based: $q_k \approx 0.3$ indicates weak or partial authority in the domain; $q_k \approx 0.7$ indicates substantive authority; $q_k \approx 0.9$ indicates deep and comprehensive authority; $q_k \approx 0.95$ indicates exceptional realized authority with rare historical precedent.

Evidence for q_k assessment includes: documented decisions made under the asset's authority in the domain; operational periods during which the domain has been governed by the asset without exception or override; institutional processes that flow through the asset's authority in the domain; and counterparty recognition (where applicable) of the asset's authority in the domain.

10.4 Why the Quadratic Form

The quadratic form $\alpha_k q_k^2$ is specifically chosen to reward depth of authority. Under the quadratic, an asset with $q = 0.9$ in one domain contributes $0.81 \times \alpha$ to the sum; an asset with $q = 0.45$ in two domains contributes $0.45 \times \alpha$ (two terms of $0.2025 \times \alpha$ each). The quadratic form correctly reflects the sovereign doctrinal view that deep authority in a few domains produces more sovereign value than shallow authority across many domains — because shallow authority across many domains tends to be merely nominal rather than genuinely exercised.

The square root rescaling returns the quadratic-weighted sum to a multiplier scale appropriate for combination with the other BSAVM dimensions. Without the square root, an asset with strong authority across multiple domains could produce unboundedly large A values; with the square root, A remains bounded in the approximately 1.0 to 2.0 range that combines stably with other dimensions.

11. Dimension C — Compounded Utility Multiplier

DIMENSION C Compounded Utility Multiplier

The forward stream of sovereign utility that the asset generates through governed capital authority

C is where BSAVM most sharply separates from standard income valuation. It values forward sovereign utility generated through governed capital power, not hypothetical fees, licensing proceeds, or imputed revenue. This is the specific dimension through which sovereign assets produce economic value across time.

11.1 The Forward Utility Stream

$$U_LAGC = \sum_{t=1..N} (LAGC_t \times \eta_t \times \rho_t) / (1 + \delta)^t$$

The forward sovereign utility stream U_LAGC is the present value of sovereign utility generated across a tracing horizon of N periods. In each period t , the Leverage-Adjusted Governed Capital $LAGC_t$ generates utility equal to $LAGC_t \times \eta_t \times \rho_t$, where η_t is the execution efficiency coefficient in period t and ρ_t is the retained sovereign utility rate in period t . The utility stream is discounted at the sovereign discount factor δ .

11.2 The Parameters

11.2.1 $LAGC_t$ (Forward LAGC Evolution)

$LAGC_t$ represents the Leverage-Adjusted Governed Capital at time t . Its forward evolution from the valuation date $LAGC_0 = E \times L \times G$ follows a specified growth pattern. BSAVM's sealed conservative protocol specifies that $LAGC$ grows at the sovereign utility compounding rate ($\rho \times \eta$) per period rather than at the historically-observed growth rate — preventing projection of exceptional early-stage returns from producing valuation inflation across the tracing horizon.

11.2.2 η_t (Execution Efficiency)

η_t is bounded in $[0, 1]$ and represents the fraction of theoretical execution quality realized in period t . It is the counterpart to G in the temporal dimension — G measures governance realization at a point; η measures execution efficiency through time. Realistic values fall in the 0.60–0.85 range with specific values anchored to realized execution characteristics per the Parameter Discipline Protocol.

11.2.3 ρ_t (Retained Sovereign Utility Rate)

ρ_t represents the rate at which governed notional in period t converts to retained sovereign utility. For sovereign assets with 100% internal retention, ρ is distinct from both fee-margin (not applicable to sovereign internal deployment) and gross return (which includes non-retained components). Realistic values fall in the 0.10–0.20 range depending on the specific asset's utility-conversion characteristics.

11.2.4 δ (Sovereign Discount Factor)

δ is the time-preference rate applied to forward sovereign utility. For sovereign internal deployment, δ is structurally lower than discount rates used in fee-extraction or sale-based valuations because the uncertainty sources that elevate those rates (market discovery uncertainty, monetization uncertainty, counterparty uncertainty) are reduced for sovereign assets with verified institutional deployment. Realistic values fall in the 0.08–0.15 range with specific selections anchored to institutional characteristics per the Parameter Discipline Protocol.

11.2.5 N (Tracing Horizon)

N is the finite horizon over which forward sovereign utility is traced. BSAVM defaults to $N = 10$ years as the standard tracing horizon — sufficient to capture the forward economic relevance of sovereign assets while avoiding the unbounded projection difficulties of perpetuity calculations. Perpetuity or extended-horizon calculations may be applicable for sovereign assets with demonstrated transmission maturity (established formed-carrier continuity) that supports longer projections.

11.3 The Multiplier Structure

$$C = 1 + \ln(1 + U_LAGC) / \ln(1 + U_ref)$$

The Compounded Utility Multiplier uses nested logarithmic dampening to translate the forward utility stream into a bounded multiplier. U_ref is a normalization constant that anchors the multiplier scale. BSAVM's sealed rule specifies $U_ref = B/3$ — a principled anchoring that ties U_ref to the objectively-determined Sovereign Reconstruction Base rather than leaving it as a free parameter.

Under the nested logarithmic structure, C is bounded even when U_LAGC is substantial. For $U_LAGC = U_ref$, $C = 1 + \ln(2)/\ln(2) = 2$. For $U_LAGC = 100 \times U_ref$, $C \approx 1 + \ln(101)/\ln(U_ref+1)$ — with the specific value depending on U_ref magnitude but remaining in the 2.0–3.5 range for realistic combinations. This prevents leverage-driven utility projection from producing explosive valuation inflation.

11.4 The Doctrinal Significance of C

C is the specific dimension through which BSAVM captures what conventional income methods cannot: the forward value of sovereign internal deployment that operates through governance of leveraged capital rather than through fee extraction on external capital. The parameter set (LAGC, η , ρ , δ , N, U_ref) is specifically designed to measure this form of economic value, and the multiplier structure ensures that the measurement produces bounded, sealed outputs appropriate to integrate with BSAVM's other dimensions.

12. Dimension T — Transmission Continuity Multiplier

DIMENSION T Transmission Continuity Multiplier

The asset's capacity to endure beyond current tacit dependencies and be transmitted to subsequent institutional generations

A sovereign asset that cannot endure beyond tacit founder dependence is valuable but limited. An asset that has begun to codify, transmit, and distribute its operative intelligence has deeper forward life. T captures this specific institutional continuity as a prudential modifier to the sovereign valuation.

12.1 Structure

$$T = 1 + \beta \times \tau$$

The Transmission Continuity Multiplier is constructed as one plus the product of the continuity leverage factor β and the continuity realization score τ . The linear form — in contrast to the logarithmic dampening of I and C or the quadratic-then-square-root structure of A — reflects the doctrinal judgment that continuity is best treated as a prudential modifier rather than as a source of explosive uplift.

For $\tau = 0$ (no continuity realization), $T = 1$, producing no multiplier effect. For $\tau = 1$ (maximum continuity realization) and $\beta = 0.5$, $T = 1.5$, producing 50% uplift. The range of T across plausible continuity profiles is approximately 1.0 to 1.5, with typical values in the 1.15–1.40 range.

12.2 The Continuity Score

$$\tau = (m + p + h + r) / 4$$

The continuity realization score τ is the mean of four component scores, each bounded in [0, 1]:

- m — modular codification: the extent to which the asset is modularly documented in forms that permit independent study and transmission
- p — procedural transfer: the extent to which operational procedures have been formalized in forms that permit handoff between operators
- h — human formation: the extent to which human carriers have been formed to operate the asset beyond the original operators
- r — resilience or role-independence: the extent to which operation is independent of specific individuals and can proceed under different operator configurations

Simple averaging is used for τ rather than weighted combination because the four components are considered co-equal in their contribution to continuity — each represents a distinct aspect of

the asset's capacity to survive institutional transitions, and no single aspect dominates the others in doctrinal importance.

12.3 The Continuity Leverage Factor

β is a parameter typically sealed at 0.50 across BSAVM applications. β 's role is to calibrate how strongly continuity enters into the final valuation relative to the other dimensions. A lower β (such as 0.25) would make continuity a minor prudential modifier; a higher β (such as 1.0) would make continuity a major value driver comparable to authority or utility.

$\beta = 0.50$ reflects the doctrinal judgment that continuity is important but not dominant — an asset with perfect continuity but weak other dimensions does not achieve high sovereign value, but an asset with strong other dimensions does achieve meaningful uplift from strong continuity. β may be revisited if institutional experience suggests calibration should be adjusted, but the sealed value of 0.50 is the BSAVM default across applications.

12.4 Present-State versus Forward-State τ Protocols

A critical feature of τ assessment is the distinction between present-state and forward-state τ values. Present-state τ reflects the currently-demonstrated institutional continuity at the valuation date — what has actually been achieved in modular codification, procedural transfer, human formation, and role-independence. Forward-state τ reflects anticipated continuity at some future institutional milestone.

BSAVM's sealed protocol requires that primary valuations use present-state τ values. Forward-state τ values may be presented as pathway indicators — showing how sovereign valuation will advance as specific institutional milestones are achieved — but should not be substituted for present-state values in the primary valuation conclusion.

The Parameter Discipline Protocol specifies explicit milestone triggers for τ -component updates. A component such as h (human formation) remains at low values (around 0.30–0.40) for institutions whose formation infrastructure exists but has not yet produced formed carriers; h advances to higher values (0.60+) upon verified carrier formation; h approaches maximum values (0.85+) upon sustained multi-generational formation. Similar protocols apply to m , p , and r .

12.5 The Doctrinal Significance of T

T captures what makes sovereign assets permanent institutional resources rather than temporary operator-dependent productions. An asset that depends entirely on its founder for operation has forward economic value only across the founder's operational tenure; an asset that has been codified, transmitted, and distributed has forward economic value that extends across successive

institutional generations. T makes this difference quantifiable and integrates it into the sovereign valuation.

T also plays a specific role in institutional strategy. Because T is the most parameter-sensitive dimension to institutional milestones (formation of carriers, demonstrated multi-operator deployment, documented operational handoffs), advancing T is typically the single highest-leverage institutional move available for increasing sovereign valuation. This is not a valuation-gaming insight — it is a recognition that institutional investments in transmission genuinely increase sovereign value because they genuinely advance the specific dimension that sovereign doctrine considers most important for long-arc institutional life.

PART IV
The Complete Method

13. The Full BSAVM Equation

With all five dimensions now specified, the complete BSAVM equation can be presented in its full expanded form:

$$\begin{aligned}
 V_{\text{BSAVM}} = & (\text{DC} + \text{RC} + \text{IC}) \\
 & \times (1 + \ln(1 + s)) \\
 & \times (1 + \sqrt{(\sum \alpha_k q_k^2)}) \\
 & \times (1 + \ln(1 + U_{\text{LAGC}}) / \ln(1 + U_{\text{ref}})) \\
 & \times (1 + \beta \times \tau)
 \end{aligned}$$

This is the complete sealed form of the doctrine. Every symbol in the equation has been specified in the preceding sections with explicit definition, structural justification, and parameter discipline:

Symbol	Meaning	Reference
DC, RC, IC	Direct development, reconstruction, and integration costs	Section 8
s	Integration score (weighted sum of d, g, o, f, x)	Section 9
α_k, q_k	Authority domain weights and realized authority scores	Section 10
U_LAGC	Forward sovereign utility stream	Section 11
U_ref	Reference utility normalization (sealed: B/3)	Section 11
β, τ	Continuity leverage factor and continuity realization score	Section 12

The equation is mathematically explicit, parametrically disciplined, and doctrinally grounded. Each factor measures a distinct dimension of sovereign value; the multiplication integrates those dimensions into the final sovereign valuation. The specific dampening structures (logarithmic, square-root, linear) produce bounded outputs across plausible parameter ranges, preventing the valuation inflation that naive multiplicative structures could produce while preserving the substantive contribution of each dimension.

Any sovereign valuation produced under BSAVM — applying this equation with the Parameter Discipline Protocol governing parameter selection — carries the defendability that sealed doctrine provides. The valuation can be traced, challenged, and verified with respect to its individual parameters and their underlying evidence. This is what distinguishes BSAVM valuations from conventional valuation outputs that often lack comparable parameter-level traceability.

14. Hypothetical Illustrative Example

This section presents a complete hypothetical BSAVM application to illustrate the method's operation. The example uses constructed hypothetical values that do not correspond to any specific real institution. The purpose is methodological illustration — showing how the five dimensions combine to produce a sovereign valuation — not specific-institution description.

14.1 Hypothetical Institutional Context

A hypothetical sovereign institution operates a proprietary framework qualifying as a Notional Exposure Governance Engine. The hypothetical institutional state at valuation date:

- Sovereign equity capital: \$100,000 (hypothetical)
- Managed leverage: 5,000:1 (hypothetical)
- Operational period: 18 months of documented live deployment (hypothetical)
- Maximum drawdown: within design envelope (hypothetical)
- Institutional corpus: comprehensive doctrinal and technical documentation
- Formation infrastructure: complete but not yet producing certified carriers

14.2 Dimension B — Sovereign Reconstruction Base

Hypothetical reconstruction cost components:

DC = \$5,000,000 (hypothetical direct development cost)

RC = \$8,000,000 (hypothetical reconstruction cost of documentation)

IC = \$12,000,000 (hypothetical integration cost)

B = DC + RC + IC = \$25,000,000

14.3 Dimension I — Institutional Integration Multiplier

Hypothetical integration component scores (with equal weighting):

d = 0.85 (doctrinal codification)

g = 0.65 (governance embedding)

o = 0.90 (operational deployment)

f = 0.55 (formation embedding)

x = 0.80 (cross-entity integration)

$$s = 0.20(0.85) + 0.20(0.65) + 0.20(0.90) + 0.20(0.55) + 0.20(0.80)$$

$$= 0.20(3.75) = 0.75$$

$$I = 1 + \ln(1 + 0.75) = 1 + \ln(1.75) = 1 + 0.560 = 1.560$$

14.4 Dimension A — Operational Authority Multiplier

Hypothetical authority across six domains (with equal weighting $\alpha_k = 1/6$):

$$q_1 \text{ (Capital Deployment)} = 0.85$$

$$q_2 \text{ (Risk Governance)} = 0.90$$

$$q_3 \text{ (Randomness Engineering)} = 0.80$$

$$q_4 \text{ (Probability Architecture)} = 0.80$$

$$q_5 \text{ (Doctrinal Guidance)} = 0.70$$

$$q_6 \text{ (Continuity Architecture)} = 0.50$$

Calculation:

$$\sum \alpha_k q_k^2 = (1/6)[0.7225 + 0.8100 + 0.6400 + 0.6400 + 0.4900 + 0.2500]$$

$$= (1/6)(3.5525) = 0.5921$$

$$A = 1 + \sqrt{(0.5921)} = 1 + 0.770 = 1.770$$

14.5 Dimension C — Compounded Utility Multiplier

Hypothetical parameter values:

$$E = \$100,000, \quad L = 5,000, \quad G = 0.80$$

$$\text{LAGC}_0 = E \times L \times G = \$400,000,000$$

$$\eta = 0.70, \quad \rho = 0.15, \quad \delta = 0.11, \quad N = 10 \text{ years}$$

$$\text{LAGC growth rate} = \rho \times \eta = 0.105$$

Forward utility stream calculation (summation across 10 years):

$$U_{\text{LAGC}} \approx \$415\text{M} \quad (\text{under stated parameters})$$

Multiplier calculation:

$$U_{\text{ref}} = B/3 = \$25,000,000 / 3 \approx \$8,333,333$$

$$C = 1 + \ln(1 + U_{\text{LAGC}}) / \ln(1 + U_{\text{ref}})$$

$$\begin{aligned}
 &= 1 + \ln(415,000,001) / \ln(8,333,334) \\
 &= 1 + 19.843 / 15.936 \\
 &= 1 + 1.245 \\
 C &= 2.245
 \end{aligned}$$

14.6 Dimension T — Transmission Continuity Multiplier

Hypothetical continuity component scores:

$$\begin{aligned}
 m &= 0.80 \quad (\text{modular codification}) \\
 p &= 0.60 \quad (\text{procedural transfer}) \\
 h &= 0.35 \quad (\text{human formation – infrastructure exists, no formed carriers yet}) \\
 r &= 0.25 \quad (\text{role-independence – founder-centered at valuation date}) \\
 \tau &= (0.80 + 0.60 + 0.35 + 0.25) / 4 = 2.00/4 = 0.500 \\
 \beta &= 0.50 \\
 T &= 1 + \beta \times \tau = 1 + 0.50 \times 0.500 = 1.250
 \end{aligned}$$

14.7 Final Hypothetical Valuation

$$\begin{aligned}
 V_BSAVM &= B \times I \times A \times C \times T \\
 &= \$25M \times 1.560 \times 1.770 \times 2.245 \times 1.250
 \end{aligned}$$

Step-by-step multiplication:

$$\begin{aligned}
 \$25M \times 1.560 &= \$39.00M \\
 \$39.00M \times 1.770 &= \$69.03M \\
 \$69.03M \times 2.245 &= \$154.97M \\
 \$154.97M \times 1.250 &= \$193.71M
 \end{aligned}$$

Hypothetical $V_BSAVM \approx \$194M$

14.8 Interpretation

In this hypothetical illustration, a sovereign institution with \$25M in reconstruction base, moderate integration ($I = 1.56$), substantive authority ($A = 1.77$), substantial forward utility on governed

capital ($C = 2.25$), and early-stage continuity ($T = 1.25$) produces a sovereign valuation of approximately \$194M — approximately 7.8× the Reconstruction Base alone.

This multiplier ratio ($V/B \approx 7.8$) is typical for sovereign assets with strong institutional integration, meaningful operational authority, and substantive forward utility but early-stage continuity. Assets with more developed continuity (formed carriers, demonstrated multi-operator deployment) would produce higher T values and correspondingly higher V_BSAVM . Assets with weaker institutional integration or authority would produce lower multipliers and correspondingly lower V_BSAVM . The method's mathematical architecture produces these results as direct consequences of the dimensional assessments rather than through advocacy adjustment.

15. Why the Method Works

15.1 Methodological Coherence

BSAVM produces defensible sovereign valuations because its mathematical architecture directly expresses sovereign doctrine rather than adapting methodology borrowed from other asset classes. Each dimension captures a genuine aspect of sovereign value; the multiplicative combination correctly reflects dimensional interdependence; the dampening structures prevent valuation inflation while preserving substantive contribution; and the parameter discipline protocol ensures parameter values are anchored in evidence rather than drift from evidence.

The result is a method whose outputs are traceable at every level. Any BSAVM valuation can be decomposed into its five dimensional contributions, each of those contributions can be traced to its underlying parameters, and each parameter can be traced to its evidentiary anchor. This traceability is what makes BSAVM valuations defensible under scrutiny — not because the scrutiny produces agreement with every specific parameter choice, but because the method's outputs stand on documented evidentiary trails rather than on assertions.

15.2 Empirical Validity

The method's empirical validity rests on the correspondence between its mathematical architecture and the actual economic reality of sovereign assets. The Reconstruction Base corresponds to real construction cost. The Integration Multiplier corresponds to real institutional embedding. The Authority Multiplier corresponds to real operational authority in specific domains. The Compounded Utility Multiplier corresponds to real forward economic streams generated through governance of leveraged capital. The Transmission Continuity Multiplier corresponds to real institutional continuity characteristics.

Because the method measures what is actually there rather than imposing an alternative frame, its outputs reflect the sovereign assets' actual economic reality. This is the sense in which BSAVM is empirically valid — not because its outputs match external market prices (which for sovereign assets typically do not exist), but because its outputs correspond to documentable features of the sovereign institutional reality they describe.

15.3 Practical Usability

The method is practically usable because its parameters can be reasonably estimated by institutions with the documentation required for sovereign operation. An institution with comprehensive doctrinal documentation can assess d ; with live operational records can assess o , G , and the LAGC components; with formation infrastructure can assess f and the τ components. The method's discipline is within the capacity of institutions that have developed to the point of being sovereign; institutions that lack the documentation BSAVM requires typically lack the substance BSAVM is measuring.

This self-consistency — the method's requirements match the substance of the assets it measures — makes BSAVM practically applicable by the institutions it is designed to serve. It is neither too demanding (requiring documentation sovereign institutions cannot produce) nor too permissive (accepting assertions instead of evidence). The calibration matches the population.

PART V
Doctrinal Foundation

16. The Philosophical Position

16.1 Sovereignty as Doctrinal Foundation

BSAVM rests on an explicit doctrinal position: a sovereign institution is not required to understand itself through the eyes of the market. It may instead understand itself through what it has built, what it has integrated, what it governs, what utility it compounds, and what continuity it is capable of transmitting.

This is a mature valuation philosophy. It recognizes that valuation methodology carries implicit assumptions about what ultimately justifies value conclusions — and that the assumptions embedded in mainstream methodology (market prices as ultimate validator, external transactions as reality-check, buyer preferences as arbiter of worth) are appropriate for market-oriented assets but inappropriate for sovereign internal ones. A sovereign methodology must rest on sovereign assumptions.

The sovereign assumption is specific: for sovereign internally-deployed assets, the institution's own measurement of what the asset governs is a legitimate basis for valuation. This is not a claim that sovereign measurements are always correct — parameter discipline and evidentiary anchoring are specifically designed to prevent sovereign measurement from drifting into advocacy — but a claim that sovereign measurement is the appropriate standard for the asset class. External market measurement is not a superior alternative; it is simply measurement of a different question (what would someone else pay?) that sovereign assets do not centrally care about.

16.2 The Difference Between Sovereign Doctrine and Market Escape

A potential misreading of sovereign doctrine is that it provides institutions with a method for escaping market discipline — for valuing their assets at whatever figure the institution prefers by declaring the valuation 'sovereign' and therefore beyond external critique. This misreading must be addressed directly.

Sovereign doctrine is not market escape. Sovereign methodology has its own discipline — evidentiary anchoring, parameter selection rules, sensitivity specification, refresh protocols, sealed protocols — that substantially constrains the valuations it produces. An institution applying BSAVM with discipline cannot produce arbitrary values; it can only produce the values that its evidence supports. The discipline is internal rather than external, but it is discipline nonetheless.

The difference between sovereign doctrine and market methodology is therefore not the presence or absence of discipline, but the specific form discipline takes. Market methodology disciplines through comparable-transaction evidence, market price data, and third-party arms-length assessments. Sovereign methodology disciplines through evidentiary anchoring to institutional substance, parameter selection rules, and internal verification protocols. Both produce bounded valuations under discipline; neither permits arbitrary valuation; the difference is in what constitutes acceptable evidence for the specific asset class being valued.

For sovereign assets, sovereign discipline is appropriate because market discipline's evidentiary base (comparable transactions, market prices) does not meaningfully exist. For market-oriented assets, market discipline is appropriate because institutional substance alone does not capture the external-facing realities that market-oriented assets live within. Each discipline fits its asset class.

16.3 The Distinction Between Internal and External Questions

BSAVM produces answers to internal questions: what does this sovereign asset govern; what authority does it exercise; what forward utility does it compound; what continuity can it transmit. These are internal to the institution holding the asset.

BSAVM explicitly does not produce answers to external questions: what would this sovereign asset sell for; what licensing revenue could it generate; what fees would it command if structured for fee extraction. These are external questions about a counterfactual asset that would have to be positioned differently than the sovereign asset actually is.

An institution using BSAVM must be clear about which question it is answering. For internal governance, planning, and institutional record-keeping, the internal question BSAVM answers is the relevant one. For external transaction preparation, licensing negotiations, or third-party sales, the external question must be answered by methodology appropriate to that question — not by BSAVM, which does not claim to answer external questions.

This clarity is itself a contribution of BSAVM. By making explicit which question is being answered and limiting itself to that question, BSAVM avoids the implicit category confusions that produce valuation controversies in mainstream practice. An institution using BSAVM for internal questions and appropriate other methodology for external questions has a clearer picture of both dimensions than an institution applying a single methodology to both.

17. Relationship to Conventional Methods

17.1 BSAVM Does Not Reject Conventional Insights

Although BSAVM is a stand-alone doctrine, it does not reject the insights of conventional valuation methodology. Conventional methods capture real dimensions of value; BSAVM absorbs those insights into a broader sovereign framework.

The Cost Approach's insight — that reproduction cost provides a floor — is absorbed into BSAVM's Reconstruction Base. The Market Approach's insight — that comparable evidence informs valuation where it exists — can be absorbed as supplementary evidence supporting BSAVM parameter selections. The Income Approach's insight — that forward economic benefit should be discounted to present value — is absorbed into BSAVM's Compounded Utility Multiplier (with the adaptation that the forward stream is sovereign utility rather than external revenue). The Relief-from-Royalty insight — that IP has hypothetical revenue-generating capacity — is absorbed into BSAVM's assessment of authority domains and utility streams. The MPEEM insight — that assets contribute value alongside other contributors — is absorbed into BSAVM's dimensional separation (B for substance, I/A for contribution types, C for output, T for continuity).

What BSAVM does reject is the claim that any of these conventional methods, applied in isolation or in reconciled combination, produces adequate sovereign valuations for sovereign internal assets. The rejection is methodological rather than insight-based; BSAVM uses the insights while correcting the methodology's structural mismatches with the asset class.

17.2 When Conventional Methods Are Appropriate

BSAVM applies specifically to sovereign internally-deployed assets. For other asset classes, conventional methods are typically the appropriate methodology:

- Market-oriented operating businesses: Income, Market, and MPEEM methods remain appropriate
- Revenue-generating IP with active licensing: Relief-from-Royalty and Market methods remain appropriate
- Assets held for sale or being prepared for sale: Market methodology is appropriate
- Public companies and actively-traded securities: Market methodology is appropriate

The sovereign diagnostic (Section 1.1) determines which class an asset falls in. BSAVM is the appropriate method only for assets that pass the sovereign diagnostic. Applying BSAVM to market-oriented assets would be as methodologically mismatched as applying conventional methods to sovereign internal assets.

17.3 Hybrid Applications

Some institutional situations involve assets that are partially sovereign and partially market-oriented — for example, a proprietary framework that is currently sovereign but may transition toward external licensing in the future, or a sovereign framework deployed alongside parallel market-oriented operations. Such situations require methodological judgment about which method applies to which asset, or how to decompose hybrid assets into sovereign and market-oriented components.

BSAVM can be applied to the sovereign components of such hybrid situations, with conventional methodology applied to the market-oriented components and the results combined appropriately. The institution must be explicit about which methodology applies to which component and why — the hybridization must not obscure the methodological structure. Done rigorously, hybrid applications produce more accurate overall valuations than either pure methodology applied to all components.

18. Applicability Across Sovereign Asset Classes

Although the illustrative example and much of the specific parameter discussion in this Edition has focused on Notional Exposure Governance Engine-class assets, BSAVM is a general doctrine applicable across multiple sovereign asset classes. This section sketches the method's application to several sovereign asset classes beyond NEGE-class assets.

18.1 Sovereign Proprietary Software Systems

Internally-developed proprietary software systems operated sovereignly by institutions (not licensed, not sold, not positioned for external monetization) qualify as sovereign assets. BSAVM applies with the following class-specific considerations:

- B decomposes into development cost, documentation cost, and deployment-integration cost
- I component set is adapted for software: algorithmic sophistication, operational integration, infrastructure embedding, user-formation integration, cross-system integration
- A authority domains are software-specific: data authority, algorithmic authority, integration authority, evolution authority, security authority
- C is calculated from forward utility the software produces in sovereign deployment (which may or may not include leveraged-capital analog depending on software function)
- T is assessed through modular codification, procedural transfer, operator formation, and architectural resilience

18.2 Sovereign Institutional Methodologies

Institutional methodologies developed and deployed sovereignly (not offered as consulting, not sold as products) qualify as sovereign assets. BSAVM applies with:

- B decomposes into methodology-development, documentation, and deployment-integration costs
- I component set assesses methodological codification, governance integration, operational application, training integration, cross-boundary application
- A authority domains are methodology-specific: methodological authority, application authority, refinement authority, interpretation authority, evolution authority
- C assesses forward utility of the methodology across its application domain
- T assesses whether the methodology has been transmitted beyond originators and can sustain institutional operation independently

18.3 Sovereign Knowledge Systems

Knowledge systems developed, maintained, and deployed sovereignly by institutions qualify as sovereign assets. BSAVM applies with adaptations for the specific character of knowledge assets — particular attention to the C dimension (forward utility of knowledge) and T dimension (how the knowledge survives transitions) with class-appropriate parameter interpretations.

18.4 Sovereign Operating Frameworks

Integrated operating frameworks combining algorithmic, methodological, and institutional components (of which NEGE-class assets are one specific type) qualify as sovereign assets under BSAVM. The full integrated framework is the valuation subject — not its separable components — and BSAVM's multiplicative architecture correctly captures the value that arises from integration beyond the sum of components.

19. Closing Declaration

The Brown Sovereign Asset Valuation Method is founded on a simple truth, which bears repetition at the close of the doctrinal presentation:

A sovereign internal asset derives value from what it can govern, not merely from what it cost to build, what someone else might pay for it, or what fee it could hypothetically charge.

Where the asset governs capital at leveraged scale, disciplines exposure, structures authority, and compounds retained internal utility, its value must be traced through those realities. That is the work BSAVM performs.

BSAVM is released to the intellectual commons in this Public Doctrine Edition as a contribution to the valuation discipline. Sovereign institutions encountering assets that conventional methodologies cannot adequately value may find in BSAVM a method appropriate to the sovereign asset class. The method is authored; the authority of the method derives from its mathematical coherence, its philosophical foundation, and the institutional context from which it emerged. No external validation is required for the method to be what it is; external adoption, where it occurs, is welcomed but does not constitute validation of sovereign doctrine.

The doctrine may evolve. Subsequent editions and applications may refine specific parameters, extend the method to additional asset classes, and seal additional protocols as institutional experience accumulates. Such evolution is the natural life of a valuation doctrine and is welcomed. What remains constant across evolutions is the foundational principle and the doctrinal architecture that expresses it: sovereign value arises from what assets govern within the institutions that hold them, and valuation methodology must be built to measure specifically that.

This Edition closes with the acknowledgment that valuation is an instrument of institutional self-understanding. An institution that measures itself accurately governs itself more wisely. An institution that cannot measure what it holds cannot fully govern what it holds. BSAVM is offered in the spirit of supporting institutional self-governance through more accurate measurement of sovereign assets — not as an end in itself, but as an instrument that serves the institutional life it is designed to measure.

Authored with care,

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